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CONTENTS OF VOLUME 24

ARTICLES

	Page
<u>The Vision in Plains Culture. RUTH FULTON BENEDICT.....</u>	<u>1</u>
<u>Medicines Used by the Micmac Indians. WILSON D. WALLIS.</u>	<u>24</u>
<u>The Traditional Origin and the Naming of the Seneca Nation.</u>	
<u>FREDERICK HOUGHTON.....</u>	<u>31</u>
<u>A New Maya Historical Narrative. RALPH L. ROYS.....</u>	<u>44</u>
<u>The First Season's Work of the American School in France for</u>	
<u>Prehistoric Studies. GEORGE GRANT MACCURDY.....</u>	<u>61</u>
<u>The Composition of Some Ancient Bronze in the Dawn of the</u>	
<u>Art of Metallurgy. GEORGE BRINTON PHILLIPS.....</u>	<u>129</u>
<u>New Phases in the Study of Primitive Music. HELEN H.</u>	
<u>ROBERTS.....</u>	<u>144</u>
<u>The Ethnological and Linguistic Position of the Tacana In-</u>	
<u>dians of Bolivia. RUDOLPH SCHULLER.....</u>	<u>161</u>
<u>The Domestic Use of Oil among the Southern Aborigines.</u>	
<u>HERBERT B. BATTLE.....</u>	<u>171</u>
<u>The Complexity of Rhythm in Decorative Art. GLADYS A.</u>	
<u>REICHARD.....</u>	<u>183</u>
<u>James Mooney.....</u>	<u>209</u>
<u>Contributions to Hopi History. FRANK HAMILTON CUSHING,</u>	
<u>J. WALTER FEWKES, and ELSIE CLEWS PARSONS.</u>	<u>253</u>
<u>The Medicine Wheel. GEORGE BIRD GRINNELL.....</u>	<u>299</u>
<u>Hawaiian Riddling. MARTHA W. BECKWITH.....</u>	<u>311</u>
<u>Medicine Songs of George Farmer. ALBERT B. REAGAN.....</u>	<u>332</u>
<u>Exploration of the Mound City Group, Ross County, Ohio.</u>	
<u>WILLIAM C. MILLS.....</u>	<u>397</u>
<u>Feather Mantles of California. CHARLES C. WILLOUGHBY.....</u>	<u>432</u>
<u>A Prochlorite Bannerstone Workshop. JOHN LEONARD BAER</u>	
<u>438</u>	
<u>A Recently Discovered Stone Sculpture in Öland, Sweden.</u>	
<u>GEORGE T. FLOW.....</u>	<u>441</u>
<u>The Family Hunting Territory and Lenápe Political Organiza-</u>	
<u>tion. WILLIAM CHRISTIE MACLEOD.....</u>	<u>448</u>

BOOK REVIEWS

<u>CRAWFORD: Man and His Past (Tozzer)</u>	72
<u>ALEXANDER: Mythology of All Races. Vol. XI: Latin-American Mythology (Tozzer)</u>	72
<u>LINDBLOM: The Akamba of British East Africa: An Ethnological Monograph (Starr)</u>	73
<u>WESTERMANN: Die Kpelle: ein Negerstamm in Liberia dargestellt auf der Grundlage von Eingebornen-Berichten (Starr)</u>	73
<u>CHOULANT: History and Bibliography of Anatomic Illustration in its Relation to Anatomic Science and the Graphic Arts (Oetteking)</u>	83
<u>WILLIAMS: Social Scandinavia in the Viking Age (Larsen)</u>	87
<u>PARK and BURGESS: Introduction to the Science of Sociology (Lowie)</u>	215
<u>HOOTON and WILLOUGHBY: Indian Village Site and Cemetery near Madisonville, Ohio (Merwin)</u>	215
<u>LEHMANN-NITSCHKE: Las Constelaciones del Orion y de las Hiadas (Hagar)</u>	217
<u>MACALISTER: A Text-Book of European Archaeology (MacCurdy) (Peabody)</u>	219, 370
<u>LUMHOLTZ: Through Central Borneo; an account of two years of travel in the land of the head hunters between the years 1913 and 1917 (Hough)</u>	220
<u>SAINTYVES: Leternuement et le Bâillement dans la Magie, l'Ethnographie et le Folklore Médical (Faye)</u>	221
<u>WISSLER: The American Indian: An Introduction to the Anthropology of the New World. 2d edition. (Dixon)</u>	373
<u>THRUM, ed.: The Fornander Collection of Hawaiian Antiquities and Folklore (Beckwith)</u>	376
<u>NILSSON: Primitive Time-reckoning: A study in the origins and first development of the art of counting time among the primitive and early culture peoples (Reichard)</u>	381
<u>MCDUGALL: Is America Safe for Democracy? (Kroeber)</u>	464
<u>RIVERS: Instinct and the Unconscious (Kroeber)</u>	465
<u>WATERMAN and GREINER: Indian Houses of Puget Sound: WATERMAN and collaborators: Native Houses of Western North America. WATERMAN and COFFIN: Types of Canoes on Puget Sound. WATERMAN: The Whaling Equipment of the Makah Indians (Kroeber)</u>	466
<u>KRAUSE: Die Kultur der Kalifornischen Indianer (Kroeber)</u> ...	467

<u>NORDENSKIÖLD: The Copper and Bronze Ages in South America (Kroeber).....</u>	<u>469</u>
<u>COLLOCOTT and HAVEA: Proverbial Sayings of the Tongans (Gifford).....</u>	<u>470</u>
<u>SULLIVAN: A Contribution to Tongan Somatology (Dixon)....</u>	<u>471</u>
<u>WILLIAMS: Principles of Social Psychology (Ogburn).....</u>	<u>473</u>
<u>MURRAY: The Witch-Cult in Western Europe: A Study in Anthropology (Loeb).....</u>	<u>476</u>

DISCUSSION AND CORRESPONDENCE

<u>Copper Objects of the Copper Eskimo—A Reply to Mr. Cadzow (Diamond Jenness), 89. The Central Arawaks: Dr. Roth's Rejoinder (Walter E. Roth), 92. The "Blond" Eskimo—A Question of Method (Louis R. Sullivan), 225. Further Discussion of the "Blond" Eskimo (H. H. Noice), 228. A Letter from Dr. Gamio, 232. Prejudice or Linguistic Short-Coming? (A. G. Morice), 385. Athabaskan Tone (E. Sapir), 391. Some Comments on "Aboriginal Tobaccos" (Melvin R. Gilmore), 480. An Essay on Geographic Names in the State of Washington (T. T. Waterman), 481.</u>
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BRIEF COMMUNICATIONS

<u>The Avunculate in Patrilineal Tribes (Robert H. Lowie), 94. The Avunculate Among the Vandau (Franz Boas), 95. The Skull from Broken Hill in Rhodesia (George Grant MacCurdy), 97. Notes on State Archaeological Surveys, 233. Meaning of the Word Dakota (Melvin R. Gilmore), 242. Analysis of Pre-Columbian Pipe Dottels (Roland B. Dixon and John B. Stetson, Jr.), 245. Ethnographical Observations from the Southern Coast of Washington Land (Lauge Koch), 484. A Suggested Origin for Gentile Organization (Leslie Spier), 487.</u>
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ANTHROPOLOGICAL NOTES

<u>Emile Cartailhac, 112. Expeditions of the Field Museum of Natural History in 1922, 114. The Angrand Prize in American Ethnology and Archaeology, 115. The Abbé Breuil on "Pliocene Man," 116. Holders of anthropological chairs in Poland, 116. Anthropological courses in Austria and Germany, 116. Field work of Father Wilhelm Koppers, 117. Death of Carl Lumholtz, 117. Dr. Charles Peabody assumes directorate, 117. Appointment of</u>
--

Mr. A. I. Hallowell, 117. Death of Dr. W. H. R. Rivers, 117. Field Work of Mr. Harlan I. Smith, 117. Drs. Walter Hough and Aleš Hrdlička appointed delegates, 117. Field work of Dr. William C. Farabee, 117. Investigations of Mr. Robert Burkitt, 117. Death of Emile Rivière, 117. Organization of a Central Section of the American Anthropological Association, 247. American Anthropoids, 249. A reconstruction of the Piltdown Skull, 250. Researches of A. I. Hallowell, 250. Activities of Mr. A. Radcliffe Brown, 250. Work of Mr. N. C. Nelson, 250. Field work of Dr. T. T. Waterman, 250. Dr. Raymond C. Dodge, chairman in National Research Council, 250. Field Work of Mr. John L. Baer, 251. Field work of Mr. John P. Harrington, 251. Honors to Prof. William H. Holmes and Dr. Aleš Hrdlička, 251. Appointments of Count Bégouen, 251. Field work of Mr. Geo. P. Donchoo, 251. Field work of Mr. Neil M. Judd, 251. Papers at the meeting of the Southwestern Division of the American Association for the Advancement of Science, 251. Doctorates in Anthropology, 252. Appointment of Dr. Aleš Hrdlička, 252. Lectures by Sir Arthur Keith, 252. Election to honorary membership of Prof. Roland B. Dixon, 252. Honorary degrees in 1922, 252. Field work of Dr. P. E. Goddard and Lieut. G. T. Emmons, 252. Papers on American Archaeology at the meeting of the Iowa Academy of Sciences, 252. Lectures by Dr. Malinowski, 252. Field work of Earl H. Morris, 252. Annual Meeting of the American Anthropological Association, 392. The Loubat Prizes, 392. Field work of Mr. Alanson Skinner, 392. Field work of the Museum of the American Indian, 393. Field work of Dr. J. Walter Fewkes, 394. Field work of Mr. Arthur C. Parker, 394. Investigations of Messrs. Lee R. Whitney and Charles E. Brown, 394. Totem pole secured by Dr. S. A. Barrett, 394. Translations of work by Prof. Hutton Webster, 394. Field work by Mr. Robert T. Aitken, 395. Retirement of Dr. F. von Luschan, 395. Death of Stephenson Percy Smith, 395. Appointment of Dr. Hugo Obermaier, 395. Work of American School in France for Prehistoric Studies, and activities of Dr. George Grant MacCurdy, 395. Activities of Dr. Carl E. Guthe, 395. James A. Teit (memorial notice), 490. Robert W. Willson (memorial notice), 492. Preliminary Report on the Field Work of the American School in France of Prehistoric Studies for the Year 1922, 493. Field Work of the University of Denver and the

State Historical and Natural History Society of Colorado, 494. Publication of a grammar and dictionary of the Tarahumara language, 495. Field work of Mr. S. J. Guernsey, 495. Memorial to Benjamin Harrison, 495. Death of the Marquis of Cerralbo, 496. Anthropological papers at the meeting of the Indiana Academy of Sciences, 496. Opening of the Swedish Institute for Race-Biology, 496. Honor conferred upon Sir James Frazer, 496. Land in Colorado containing prehistoric towers withdrawn from settlement, 496. Election of Dr. Elsie Clews Parsons, 496. Lectures by Dr. Aleš Hrdlička, 496. Field work of Dr. E. S. Handy and Mrs. Willomdean Chatterton Handy, 496. Officers of Section H, A. A. A. S., 497. Field work of Robert T. Aitken and John F. G. Stokes, 497. Activities of Dr. Aleš Hrdlička, 497. Work of the Pueblo Bonito Expedition, 497. Lectures by Prof. A. M. Tozzer, 497. Opening of the Museum of the American Indian, Heye Foundation, 497.

Anthropology at the Brooklyn Meeting and Proceedings of the American Anthropological Association	99
American Anthropological Association, Officers and Members 1922	118

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No. 1

THE VISION IN PLAINS CULTURE

By RUTH FULTON BENEDICT

THE Indians of the Plains share with the tribes to the east and the west an inordinate pursuit of the vision. Even certain highly formalized conceptions relating to it are found on the Atlantic Coast and on the Pacific. Thus, in spite of all diversity of local rulings, the approach to the vision was, or might always be, through isolation and self-mortification.) More formally still, the vision, over immense territories, ran by a formula according to which some animal or bird or voice appeared to the suppliant and talked with him, describing the power he bestowed on him, and giving him songs, mementoes, taboos, and perhaps involved ceremonial procedure. Henceforth for that individual this thing that had thus spoken with him at this time became his "guardian spirit."

Not only the means of obtaining the vision, however, and the events of the vision itself, were standardized over thousands of miles, east and west, and north and south; the sanctions derived from it were as widely formalized. Ceremonial procedure, pre-eminently, was derived from it, but, almost as widely, healing powers, success in battle, and control of the weather. Even trivial connections have crossed the continent; so that, not only on the Plains, but on Puget Sound¹ and on Chesapeake Bay² the person who confers a name upon another chooses some phrase descriptive of something his guardian spirit said or did in his vision.

In spite of such wide-spread uniformities, however, the vision-quest of the Plains has a character very distinct from that

¹ Haeberlin, MSS. on Indians of Puget Sound.

² Heckewelder, J., Indians of Penn., p. 246.

of the Plateau Salish on the one hand, and of the Woodland Algonkian on the other. In regard to one fundamental conception, the Plains lie like a wedge thrust up and separating these two widely divided areas, each more like one another than either is like the neighboring Plains. For both to the east and the west of the Plains the pursuit of the vision is definitely an affair of adolescence, (a ritual at entrance to maturity.) Among the Winnebago and Central Algonkian, boys trained for fasting from the age of eight or nine³—even from the age of five⁴—and were expected to persevere in it at intervals until puberty. In theory at least, after intercourse with women, the pursuit of visions was discontinued for life. To the west, among the Plateau Salish, this fasting for a guardian spirit is combined with a puberty training lasting for years, during which the boy seeks to acquire skill by magical means for his chosen occupation in life.⁵ The vision of the guardian spirit is by no means the culmination of the period of probation; it has become almost incidental in the strong local development of a professional apprenticeship during adolescence.

On the Plains, however, it is mature men who characteristically seek the vision. Among the Arapaho,⁶ and the related Gros Ventre,⁷ Dr. Kroeber long ago pointed out that the custom of puberty fasting is not known at all. According to the myths and recorded experiences, this generalization holds good for all the western Plains, north and south. At the east, especially among the Assiniboine,⁸ the Hidatsa,⁹ and the Omaha,¹⁰ the puberty convention of the Woodlands is known and practiced in varying degrees; but it is always in addition to the characteristic Plains maturity fast. That is, we find even among the Omaha, who most definitely link the securing of a guardian spirit with puberty, that the vision is sought also for all kinds of recurring experiences

³ Radin, *Autobiography of a Winnebago Indian*, pp. 386-7.

⁴ Jones, *Ojibwa Texts*, p. 303.

⁵ Teit, *The Thompson River Indians*, p. 318; *The Shuswap*, p. 588.

⁶ Kroeber, *The Arapaho*, p. 418.

⁷ *Ibid.*, *The Gros Ventre*, p. 222.

⁸ Lowie, *The Assiniboine*, p. 48.

⁹ Pepper and Wilson, *An Hidatsa Shrine*, p. 319.

¹⁰ J. O. Dorsey, *Siouan Cults*, p. 390.

throughout maturity, as it is all over the Plains, and is not in the Eastern Woodlands.

This one generalization—that the pursuit of visions on the Plains is an affair of maturity and not of adolescence—is probably, however, the only blanket description that is possible in the personal *wakan* experiences of this area. Each tribe has its own distinctive version, a pattern so distinct that any random reference to fasting and vision in the native texts could almost without fear of mistake be assigned to the one particular tribe from which it was collected—at most to two or three which are in some way closely associated.

The truth of this assertion can most readily be tested by an examination (I) of certain patterns which are rather commonly assumed to be characteristic of the vision quest of the Plains; and (II) of certain tribal patterns, which, though they have universally travelled in weakened form beyond the limits of any one tribe, are yet strongly localized.

I

Three patterns of wide distribution are sometimes taken to characterize the vision quest of the Plains: (1) The infliction of self-torture; (2) the lack of a laity-shamanistic distinction; (3) the attaining of a guardian spirit. Are these indeed integral parts of the vision-idea of the Plains as a whole; or are they rather distinct patterns existing sometimes side by side with the vision quest without ever amalgamating with it, and at all times combining with it in different proportions and with different connotations?

Let us examine first the relation in which self-inflicted torture stood to the visionary experiences. In such a typical Plains tribe as the Blackfoot, torture was of course well-known. They practiced the sun dance, and those who entered the ordeal tore loose the skewers inserted in the muscles of the back, as was done in all Plains tribes where the sun dance was observed, with the sole exception of the little known Kiowa. Self-torture was practiced also in a variety of other connections. Maximilian¹¹

¹¹ Maximilian, *Reise*, vol. II, p. 188.

specifically contrasts the Blackfoot custom of cutting off finger joints in mourning, with the Mandan convention of making the same offering in the pursuit of a vision. Dr. Wissler mentions also among the Blackfoot another wide-spread Plains torture pattern known as "Feeding-the-sun-with-bits-of-one's-body."¹² The skin is pricked up with a splinter or sharp knife, and a coin-shaped piece cut from beneath. The precise procedure is reported for the Dakota, the Cheyenne, and the Arapaho. But in all these cases the idea is of a sacrifice to the sun—for the Blackfoot on the occasion of a war party. The idea, so far as we know, among the Blackfoot is never associated with guardian spirit experiences.

In fact no one of these torture customs has become associated with the vision practices. We have an enormous literature for the Blackfoot, and nowhere, in their bulky traditions,¹³ or in the vision stories collected by Dr. Wissler,¹⁴ or in the observant records of McClintock¹⁵ or Grinnell,¹⁶ is the use of any self-torture other than hunger and thirst even hinted at.

This same disassociation of torture- and vision-patterns holds also, though in lesser degree, for the Arapaho to the south. Torture for mourning,¹⁷ for votive offerings for success,¹⁸ and in the sickness of relatives,¹⁹ is marked in Arapaho culture. In not one of the vision experiences collected by Dr. Kroeber, however, is torture used in connection with the securing of visions.²⁰ The disassociation is not so complete as among the Blackfoot, for in one of the three recorded variants for the origin of the Buffalo Lodge²¹ the suppliant "not only abstained from food and drink, but inflicted pain upon himself. Then he saw a

¹² Wissler, *Blackfoot Sun Dance*, p. 205.

¹³ Wissler, *Blackfoot Mythology*.

¹⁴ *Ibid.*, *Blackfoot Bundles*.

¹⁵ McClintock, *Old North Trail*.

¹⁶ Grinnell, *Blackfoot Lodge Tales*.

¹⁷ G. A. Dorsey, *Traditions of the Arapaho*, p. 198.

¹⁸ *Ibid.*, *Arapaho Sun Dance*, p. 184.

¹⁹ *Ibid.*, p. 182.

²⁰ Kroeber, *The Arapaho*, pp. 419-428.

²¹ Dorsey, *Traditions*, p. 49.

vision." Mooney also in his history of the ghost dance,²² relates that Black Coyote had been told in a mourning vision to make exaggerated use of the offering of coin-shaped bits of skin to insure the lives of his remaining children. This "vision" command, however, is an almost perfect combination of all three of the usual Arapaho non-visionary uses of laceration.

The Cheyenne have been very closely associated with the Arapaho for generations; yet their practices in this regard differ strongly. We lack any synthetic account of their culture and any large body of traditions, but in the fragments that we have there is abundant emphasis upon self-torture. Thus G. A. Dorsey states in 1905 that "the Cheyenne probably practiced torture to a greater extent for all purposes than any other tribe so far as is known. Wherever Cheyenne came together, it was a common sight to see men torturing themselves around the camp circle."²³ They would also retire to a lonely hill where they were tied suspended from poles, seeking a vision. Recently, in his *When Buffalo Ran*, G. B. Grinnell has given us the only concrete description of a Cheyenne vision quest.²⁴ In the experience he describes, the suppliant goes out to a lonely part of the prairie on the day selected, accompanied by the person who is to tie the thongs for him. The pins and knife are consecrated by prayer and held toward the sun and sky, and laid upon the earth. He is then tied to the pole by means of wooden pins driven through the flesh. All day long, after he is left alone again, he must walk back and forth on the sunward side of the pole, praying constantly, and fixing his eyes on the sun, trying to tear the pins loose from the torn flesh. At night the helper returns, and pieces of the torn skin are held toward the sun and sky and the four directions and buried. That night he sleeps on the prairie and gets his power.

■ In recent practice, therefore, the use of torture in the vision quest is strongly established among the Cheyenne. We have in addition to these descriptions, however, two fragmentary

²² Mooney, *Ghost Dance*, p. 898.

²³ G. A. Dorsey, *Cheyenne Sun Dance*, p. 17.

²⁴ Grinnell, *When Buffalo Ran*, p. 79.

collections of traditions containing five references to fasting and vision,²⁶ and not one of these connects torture with the experience. It may well be, therefore, that the association of torture and vision even for the Cheyenne is not rooted very far back in their history. We know that even in 1850 they were living in territory contiguous to the Dakota and Hidatsa,²⁶ among whom if anywhere we must look for a strongly rooted association of torture and religious experiences. Taken in connection with the well-known instability of Cheyenne culture²⁷ in the century preceding our knowledge of them, it seems possible that the vigorous association of torture with the vision is a recent phenomenon among the Cheyenne.

This fragmentary evidence from the Cheyenne of a recent use of torture in the pursuit of the vision is greatly strengthened by the very full data from the Crow, where we find precisely the same contrast between ancient tradition and more modern usage. There is an entire omission of self-torture from the very numerous accounts of vision experiences in their mythology.²⁸ In recent practice, however,²⁹ the sacrifice of finger joints, the cutting of strips of skin from arms and legs, and all the variants of the sun dance torture are resorted to in obtaining the vision.

Throughout all the tribes of the Western Plains we find, then, a marked disassociation, either in the present or the past, of the two patterns of torture and the pursuit of visions. Among the tribes of the Southern Plains, the torture pattern hardly exists at all. The Omaha cut their arms and legs in mourning,³⁰ and the Pawnee, at least the Pawnee women, on similar occasions did the like.³¹ The one possible reference to any use of torture in religious experiences—for neither the Omaha nor the Pawnee observed the sun dance—is in J. O. Dorsey's description of the

²⁶ Kroeber, *Tales*, J. A. F. L., vol. XIII, pp. 163, 188, 190; Grinnell, *Some Early Cheyenne Tales*, J. A. F. L., vol. XX, p. 188; vol. XXI, p. 282.

²⁸ Mooney, *The Cheyenne*, p. 367.

²⁷ *Ibid.*, p. 361.

²⁹ Lowie, *Crow Myths*.

³⁰ Lowie, *MSS. Crow Religion*.

³¹ Fletcher, *The Omaha*, p. 591.

³² Personal communication from Dr. Wissler.

accessories of prayer among the Cegiha,³² where, as the sixth feature, he mentions "offerings of goods or pieces of the suppliant's flesh"; but he is including here cognate tribes such as the Kansa and Ponca which had adopted the sun dance and certain tortures. Certainly nowhere in his own many specific descriptions in the same volume, nor in his native texts,³³ nor in Miss Fletcher's work, is there any other mention of laceration.

For the Pawnee we have a voluminous body of myths and traditions and the concept of self-torture in any connection is conspicuously absent.

There remain, then, the tribes of the eastern and northern Plains, more especially the western Dakota and the Mandan-Hidatsa. These tribes do in fact present an almost complete picture of the amalgamation of the two patterns, self-torture and the vision quest.

For the village tribes, De Smet says in 1852 that he "could not discover a single man at all advanced in years whose body had not been mutilated, or who possessed his full number of fingers."³⁴ And Maximilian had before remarked (1833) that these offerings were not made as among the Blackfoot, but in intercession with the spirits.³⁵

Among the neighboring Assiniboine we find recorded these same modes of self-torture in the pursuit of the vision. One description³⁶ records how men fasting for visions on Snake Butte were attacked by snakes, till at last one in his frenzy cut off strips of his flesh and fed them. "None of the other men have done this before," the snakes tell him, "Come with us, grandchild! We pity you." Thus he was successful.

The one vision story of the Gros Ventre traditions duplicates this same situation, and adds more specific details; the suppliant cuts his flesh, his ears, and his little finger—this last considered

³² J. O. Dorsey, *Siouan Cults*, p. 373.

³³ J. O. Dorsey, *The Cegiha Language*.

³⁴ De Smet, *Western Missions*, p. 92.

³⁵ Maximilian, *op. cit.*

³⁶ Lowie, *The Assiniboine*, p. 48.

an especial deprivation according to Catlin, at least among the Mandan.³⁷

But it is among the Dakota that, according to our data, the vision was most often sought by torture. It is true that even in describing the western Dakota, Dr. Walker³⁸ confines any mention of the torture strictly to the sun dance. But all other authorities emphasize the part played by lacerations in the securing of any sort of vision among the Dakota. J. O. Dorsey in his "Siouan Cults" has gathered together the older descriptions. Riggs, writing in 1869, describes the sun dance form of tying, and continues: "Thus they hang suspended only by those cords without food or drink for two, three, or four days, gazing into vacancy, their minds fixed intently upon the object in which they wish to be assisted by the deity, and waiting for a vision from above. Once a day an assistant is sent to look upon the person thus sacrificing himself. If the deities have vouchsafed him a vision or revelation, he signifies the same by motions, and is released at once; if he is silent, his silence is understood, and he is left alone to his reverie."³⁹ Lynd describes those "who pass knives through the flesh in various parts of the body, and wait in silence, though with fixed mind, for a dream or revelation."⁴⁰

In the process of qualifying as a shaman the vision-by-torture played an equally important part. The final tortures of the sun dance, here as nowhere else, were reserved for those who desired to become shamans,⁴¹ and the ultimate purpose of the ordeal was the obtaining of the vision which was granted at any time before the dispersal for the next winter's camp. Or, a candidate might go to an individual shaman, who accompanied him to an isolated spot and tied him as in the sun dance; or he might himself cut off and offer bits of flesh in the presence of the shaman.⁴²

³⁷ Kroeber, *Gros Ventre Myths*, p. 122; Catlin, *North American Indians*, p. 174.

³⁸ Walker, *Dakota Sun Dance*, p. 68.

³⁹ Riggs, *Gospel among the Dakotas*, p. 81.

⁴⁰ Lynd, *Religion of the Dakota*, p. 164.

⁴¹ Walker, *Dakota Sun Dance*, p. 118.

⁴² Wissler, *Societies of the Dakota*, p. 82.

It seems, then, that the association between self-torture and the vision centered in the Dakota-Mandan area. The geographical continuity of the distribution of the practice, the gradual shading-off of the torture, especially in connection with the vision quest, make it seem probable that the connection originated only once, and was diffused from that center.

One outstanding consideration points to the Dakota as the center from which it was distributed, if not necessarily the tribe where the connection originated. This consideration is the otherwise fortuitous association existing everywhere throughout the Plains between torture and an offering to the sun. The Blackfoot feeds the sun with the coin-shaped bits of his body; the Cheyenne, in the guardian spirit vigil, consecrates his knives and torn flesh to the sun, and keeps his eyes fixed upon it. Everywhere where we find torture we find that the sun, for no apparent reason, is especially involved. Now it is just here among the Dakota where the sun does really play a preëminent and much-emphasized part in their ceremonial practices and in their cosmology. So far as our data go, no other Plains tribe separated out the sun and raised it to the supreme place, as did the Dakota. Their sun dance, unlike that of most tribes, was in large part a veritable worship of the sun. When, therefore, from the study of geographical distribution, we find evidence that the greatest and most deeply rooted development of self-torture in the vision quest was just here among the Dakota, is it not also probable that the connection with the sun was diffused along with the torture practices from this center?

The infliction of self-torture, therefore, is a Plains pattern distinct from that of the vision quest, and combined with it in different proportions in each different tribe. The center of association between the two was in the Dakota-Mandan region, and in recent practice was strongly developed among the Cheyenne and Crow, though in their mythologies such practices have no place. The Blackfoot never resorted to lacerations in the pursuit of visions; and the Arapaho, perhaps, as Dr. Kroeber suggests, influenced by the tortureless Ghost Dance, almost as absolutely divorce the two. On the Southern Plains, moreover, among the

Omaha and Pawnee, laceration was not practiced in any connection, except as it was incumbent upon women in mourning. It was never a means of obtaining visions.

The second generalization concerning the vision which requires examination is that from it there resulted, as in many other parts of North America, the absence of any laity-shamanistic distinction. Logically it seems that such a loss must follow in a culture that holds it more or less obligatory for every man to go out at least once in his life and obtain power from the spirits. And this logical corollary is indeed common on the Western Plains. Among the Arapaho "a distinct profession of medicine men or shamans can not be spoken of with any approximation to correctness, any more than can a caste of warriors. The differences between individuals in kind and degree of supernatural powers were apparently not greater than in matters of bravery or distinction in war."⁴³ And the absence of a special spiritually-sanctified profession is emphasized in Dr. Lowie's statement concerning the Assiniboine:

It depended wholly on the nature of the revelation whether they became founders of dancing societies, wakan practitioners, owners of painted lodges, fabricators of war-shirts, or prophets. In every case implicit obedience was required.⁴⁴

But on the Eastern Plains this simple logic of a common access for all men to supernatural power was overlaid in a variety of ways, notably among the Dakota and the Pawnee.

The Dakota make a sharp break between the laity and the shamans; their preliminary experiences, special knowledge, and relations to the supernatural were all differentiated. The shamans possessed an esoteric vocabulary; they were organized in cults where initiation was wholly on the basis of supernatural experience; they alone had guardian spirits won by fasting and vision. Those entering the sun dance enrolled in different grades and endured different tortures according as they were candidates for the shamanistic class or not.

⁴³ Kroeber, *The Arapaho*, p. 419.

⁴⁴ Lowie, *The Assiniboine*, p. 47.

So far has this classification gone that guardian spirits were obtained by diametrically different methods by the two classes. Shamans fasted for their visions in the ordinary way;⁴⁶ on the contrary, the guardian spirits of those not so numbered were assigned at puberty by the shamans.⁴⁶ The old writers, whose descriptions make up J. O. Dorsey's account of the cults of the Dakota, go so far as to say that individual guardians were here never revealed in vision; but in this they were certainly ignorant of the necessary qualifications of the shaman.

Among the Dakota we have still no fixed and hierarchal priestly class. The Pawnee, however, while supposedly sharing the same guardian spirit ideas as the Arapaho, for instance, have found it possible to superimpose a ranked and vested College of Cardinals. A vision by no means in itself gave right of entrance into this priestly hierarchy. A shaman was made not by any momentary experience, however essential, but by prolonged training. In the myths this necessity is most often formalized somewhat after this fashion in the spirits' instructions: "There [in your lodge] you must stay by yourself, so that I may appear to you in your dreams, and teach you the songs and also my powers."⁴⁷ In practice, candidates were instructed by the shaman or priest whom they would succeed at his death.⁴⁸ For since the number was practically fixed, vacancies could occur only in this way.

But the Pawnee not only fixed a gulf between the laity and the non-laity; this latter class was also strongly subdivided.⁴⁹ Highest in prestige, authority, and esoteric knowledge stood the priests, guardians of the sacred tribal bundles, to whom even the chiefs were subordinate. Separated from these, but also from the laity, were the medicine-men, whose powers came more especially from visions, and whose functions were healing and

⁴⁶ Wissler, *Dakota Societies*, p. 81.

⁴⁶ J. O. Dorsey, *Siouan Cults*, p. 443.

⁴⁷ G. A. Dorsey, *The Pawnee*, p. 53.

⁴⁸ Murie, *Pawnee Societies*, p. 617.

⁴⁹ Wissler, *MSS.*, *The Pawnee*.

sleight-of-hand. In theory, at least, these two groups did not enter each other's ceremonies.

This differentiation of priest and medicine-man corresponded to the division of their cosmology, so that the priestly class derived their power from the gods above (chiefly the stars) and the medicine men from the gods below (chiefly the animal lodges).

While, therefore, the guardian spirit idea carried with it over the greater part of the Plains the idea of a common exercise by all men of spiritual powers, sharp separations between laity and non-laity had nevertheless arisen in certain tribes, notably the Dakota and Pawnee.

The third generalization concerning the vision quest which requires examination is that which makes it synonymous with the attaining of a guardian spirit. However it may be in other areas of North America, on the Plains there is no tribe where the vision quest was not a much more general phenomenon than the acquiring of a guardian spirit. Everywhere, even in those tribes where every man was expected to fast once in his life specifically for an individual guardian, the vision was sought also by the same means on continually recurring occasions—that is in mourning; as an instrument of revenge on one's enemies; on account of a vow made in sickness or danger for oneself or one's relative; on initiation into certain societies; and as a preliminary to a war party. On all these occasions, the seeker ordinarily received his power or commands directly, without specifically acquiring a guardian spirit.

Besides this invariable usage, moreover, there is an immense divergence among the tribes of the Plains in the degree to which they associate the formula of the guardian spirit with even the primary or "great" vision—the one, that is, almost always, according to their traditions, more or less distinguished from all others, and which was the Plains equivalent of the surrounding practice of the puberty fast for a guardian spirit.

With certain tribes the primary vision was indeed very closely bound up with the securing of a guardian spirit. This was true among the Blackfoot and the Crow, but the association

was according to an entirely different formula. Crow ceremonialism in very many different phases—initiation into the Tobacco Planting Ceremony, the Medicine Pipe ritual, even in certain cases into war party leadership, is formalized as an “adoption” by a ceremonial “father.” So in the vision quest. The power that appears to the Crow addresses him in set words, “I make you my son.” Afterwards throughout the myths he will be referred to as “the dwarf-adopted one,” the “one the Sun adopted,” etc.; the guardian spirit is addressed as “father.” It is significant that this same form of address is found only among the Hidatsa, the Gros Ventre, and the Arikara, who are all in territory contiguous to that of the Crow. None of these tribes, however, follow out the implications of this intimate relationship as the Crow do, for example, in the following myth. A dwarf-adopted boy is held captive by Red-Woman and the dwarf goes out searching for him. “He came up to the place. ‘I think this witch has my boy in there.’ He sent an eagle to scout for his son.” That failed, and he sent the smallest ant, who came back with word of his son.⁵⁰ That is, under the influence of this nomenclature, at least in certain cases, the Crow conceive a sort of paternal responsibility on the part of the “father” that is quite foreign to the thought of the other tribes.

The Blackfoot have also a strong sense of an intimate and peculiar relation obtaining between the suppliant and the animal or thing that has blest him in this fast; but they have not the Crow formula. They have followed another line of thought, and in the overwhelming majority of the experiences both in the myths and in the shamanistic biographies they conceive a man’s guardian spirit to be some animal or bird or thing seen by him in some every day connection that for some reason stands out in consciousness. Their vision-stories, therefore, describe actual and rather minor occurrences without any particular formula. Medicine comes from the skunk who follows and is fed; from the eagle when one has unwittingly made camp at the foot of a particularly tall tree holding a particularly large eagle’s nest; from the swollen white wood-worm which crawls out of the decaying

⁵⁰ Lowie, *Crow Mythology*, p. 130.

log as it begins to burn on the hearth. When we compare this with the complicated formula of the Dakota, or, better still, the cosmic visions of the heavens that an Ojibwa requires,⁶¹ we recognize the strong individuality of this Blackfoot trait.

In contrast to this insistence upon securing at the time of this vision a guardian spirit with intimate and personal relations to oneself, we may consider the Cheyenne vision described above. Here, as is common where torture is predominant, the associated idea of the sun is stressed throughout in the details of preparation, in the walking on the sunward side of the pole, in the fixation of the eyes upon the sun, and finally in the offering of the torn flesh. When finally the wolf appears in a vision the following night it is hardly more than a postscript.

The Cheyenne story is only an indication of a tendency which we find logically carried out among the Dakota. As we have already noted in the discussion of the differentiation of laity and non-laity in this tribe, for the majority of the people the guardian spirit was assigned at puberty by the shamans—the “armor gods”⁶²—and the subsequent seeking of visions had no relation whatever to this acquisition. The object in these was to secure supernatural communication with the sun, or with lesser of the *wakan tanka*. “If an Oglala contemplates any important undertaking, he ought to seek a vision.”⁶³ But these visions did not raise any question of guardian spirits.

Even for the shamans, who sought guardian spirits in vision more nearly according to the usual Plains pattern, there was nothing comparable to the simple rapport of the Blackfoot with his individual spirit guardian. The Dakota shaman, if he was successful, obtained a highly complex dream involving four sets of actors, and the metamorphosis of at least two of these sets. Which one of these actors in this highly artificial dream constituted the man’s guardian spirit was a purely formal matter, but one inexorably fixed by tribal usage.⁶⁴ Among the Dakota, therefore,

⁶¹ Jones, Ojibwa Texts, pt. ii, p. 305.

⁶² J. O. Dorsey, Siouan Cults, p. 443.

⁶³ Walker, Dakota Sun Dance, p. 68.

⁶⁴ Wissler, Dakota Societies, p. 81.

the guardian spirit formula was all but struck out of the vision quest.

Among the Pawnee the separation of the vision quest and the guardian spirit idea has proceeded along another line. The Pawnee, to judge by the voluminous collected *Traditions*, present a number of marked points of contrast to the rest of the Plains. We have already had occasion to mention several. But at no point, in relation to the visions, are they so sharply at variance with all Plains ideas whatsoever as in their substitution of the "animal lodges" for the guardian-spirit formula. The Pawnee, as we have seen, separate the spirits into two great groups—of the "above," and the "below." The above-gods were the source of their star cult, the basis of their tribal bundle scheme, and the patrons of the priests (as distinct from the medicine-men). The below-gods were presided over by the four (or five) definitely localized "animal lodges,"⁵⁵ and were the source of the power of the medicine-men or shamans. The stories of these animal lodges make up sixteen of the twenty-six tales of *wakan* experiences recorded in the volume of Pawnee *Traditions*. These lodges were not abodes of groups of buffalo, or flocks of eagles, such as were rather commonly seen by vision seekers of other tribes; they were lodges which were supposed to exist under various well-known hills and rivers where *all* the animals gathered together for sleight-of-hand performances and to teach their powers. These animal medicine lodges are present in just two other Plains bodies of myths, the Wichita⁵⁶ and the Arikara;⁵⁷ that is, the other two Caddoan tribes of the Plains for which we possess collections of traditions. It is therefore an old and persistent Caddoan conception; and its analogies are not with the Plains region, but with the Southwest. It is in the legends of the Navaho⁵⁸ that we find again the division into upper and lower gods, their separate and rival powers, even the abodes of the animal-gods in lodges

⁵⁵ Grinnell, *Pawnee Hero Tales*, p. 358; G. A. Dorsey, *Traditions of the Skidi Pawnee*, p. xix.

⁵⁶ G. A. Dorsey, *Myths of the Wichita*, p. 312.

⁵⁷ G. A. Dorsey, *Myths of the Arikara*, p. 164.

⁵⁸ Matthews, *Navaho Legends*, p. 165.

under the water, "Water-monster, Frog, Fish, Beaver, Otter, and others." One element only of the common Pawnee story is lacking in the Navaho legend, the conception of personal power acquired in the animal lodge. We may assume that the Pawnee easily associated that typical Plains idea with a familiar conception of animal lodges, and in so doing, inhibited the development among them of the guardian spirit formula. For it is obvious from the whole mass of Pawnee mythology that the idea of the individual guardian as generally understood has no place whatever in their vision quest. Their medicine men learned the mysteries of "*all* the animals"; if one animal sometimes stands out prominently in some such capacity as that of messenger, it is still a far cry to the Crow or Blackfoot relationships. Where we do find a conception of an individual rapport with a definite animal or thing, in the myths, it is traced to a relationship at birth or before. That this is indeed a fundamental Pawnee conception seems the more probable from Murie's note appended to "Pawnee Societies"³⁹ to the effect that every child while in the womb, through the mediumship of one or other parent, was brought under the power of an animal; though sometimes trees, stars, or the thunder might take the place of the animal.

On account, therefore, of the universal Plains usage of seeking a vision on many constantly recurring occasions; and, also, on account of the characteristic practices of tribes such as the Dakota and Pawnee, where the guardian spirit formula hardly exists at all, the vision quest on the Plains was a much more general phenomenon than the acquisition of a guardian spirit.

II

We have, then, examined three patterns rather commonly held to be descriptive of the vision quest of the Plains as a whole, and found that tribal practices in each instance run the whole possible range of variation. Besides this, moreover, there are certain other patterns definitely localized in certain tribes or groups of tribes on the Plains which contribute still more to the complexity.

³⁹ P. 639.

Most striking of these is the concept of purchase among the Blackfoot. The visions themselves could be bought and sold. Every man went out at least once in his life seeking a vision on his own account. Many failed, so the Blackfoot repeatedly assert. But whether he met with success or failure, he must also buy other men's visions for his social prestige. They were the basis of the tribal economic system; the greater proportion of Blackfoot capital was invested in these readily salable commodities. Investment in them, as Dr. Wissler puts it, was equivalent to money in the savings-bank. Tribal dandies purchased them also as a means of parading their wealth. Just as all the Plains tribes had gatherings where they publicly rehearsed their war deeds, so the Blackfoot had also occasions where each recounted the visions he had owned, and the property he had paid for them. And his recital was met with jeers or approval according as it was short or long.⁶⁰

I have called it buying the vision, for to the Blackfoot that is what it meant. In telling his story he makes absolutely no distinction in the use of the first person between those visions he has bought and those he has fasted for. Its designation in the literature is "purchasing the medicine bundle," but commonly the purchaser makes up his own bundle anew, according to the specifications; what he has really bought being the songs, the taboos, the "power," and the right of performing the ceremony that goes with it.

The number of such bundles among the Blackfoot is practically countless, all conforming to a definite tribal ritualistic pattern. This pattern also has determined tribal usage in a host of miscellaneous connections: shields, headdresses, songs, painted tipis, shirts of ordinary Plains type, even vows of self-torture, and many of the industrial arts are transferred exactly as is a medicine bundle. Even the sun dance has adapted itself to this pattern, and its annual celebration is strictly the transfer of a bundle according to the usual conditions of such transfer.⁶¹ The ritualistic system of the Blackfoot, then, offers a perfect

⁶⁰ Wissler, *Blackfoot Bundles*, p. 276.

⁶¹ Wissler, *Blackfoot Sun Dance*, p. 263.

example of the enormous formative power of a once-established pattern, and its tendency toward indefinite self-complication.

+ The idea that the blessing of the spirits may be bought and sold we find also among the Crow,⁶² the Arapaho,⁶³ the Hidatsa,⁶⁴ as also among the Winnebago.⁶⁵ But nowhere does this concept take the prominent place in tribal life that it does among the Blackfoot. Among the Winnebago it is merely a weak substitute
+ for the real vision provided for those who fail to get one on their own account. Among the Hidatsa, as we shall see, it is combined with their idea of inheritance.

For, quite as the Blackfoot have developed the concept of purchase, the Hidatsa have elaborated a definitely localized pattern of inheritance. The Hidsata are matrilineal; but medicine bundles are inherited in the father's line. It was a strangely uncoördinated process by which rights to visions were perpetuated, for though it was obligatory that it descend in the male line, one must also have the same vision before one inherited, and one must likewise pay a purchase price.⁶⁶ Since an inheritor must have a vision from the family bundle, the function of the father in preparing the mind of the suppliant for this particular spirit-visitant became important. Not only was supervision exercised by the father over fasting; but ceremonies had to be performed under the superintendence of duly qualified bundle owners. Formerly people made dances on the initiative of visions, but they were found to die soon after.⁶⁷

The practice of transferring the vision or the medicine bundle in the male line is found with varying intensity in several tribes—the Crow, the Arapaho, the Pawnee (for shamans), the Arikara, the Omaha, and most strongly among the Central Algonkian.⁶⁸ In fact this concept of inheritance of visions, closely associated with the necessity of having also the same vision, a coincidence

⁶² Lowie, *MSS.*, *Crow Religion*.

⁶³ Kroeber, *The Arapaho*, p. 436.

⁶⁴ Lowie, *Hidatsa Sun Dance*, p. 417.

⁶⁵ Radin, in *Anthropology in North America*, p. 305.

⁶⁶ Lowie, *Hidatsa Sun Dance*, pp. 416, 417.

⁶⁷ *Ibid.*, p. 418.

⁶⁸ Radin, *Autobiography*, p. 390; Skinner, *Menomini*, p. 104.

brought about by an effort of family supervision, seems to be primarily an Algonkian trait, and possibly intrusive on the Plains. It is only one of the characteristic Algonkian procedures that are found in detail on the Eastern Plains.

It is from this point of view, i.e., its close parallelism with Woodlands culture, that it is most profitable to examine the vision practices of the Omaha. We have already noted the parallelism of this tribe to the Algonkian in absence of torture; in the connection they maintained between the acquiring of a guardian spirit and puberty fasting; and in the practice of inheritance coupled with the requirement of dreaming the family dream. The catchwords of the vision are also alike among the Omaha and the Algonkian. Thus the invariable form of address to their individual spirit is, for both, "Grandfather," a term used nowhere else on the Plains except among the Kiowa, and again among the Navaho.⁶⁹ Just as invariable is the formula of the vision: "I have had compassion upon you." This also is common to the Algonkian and Omaha, and has a very limited distribution in the rest of the Plains area.

The hierarchy into which the Omaha grouped their visions is also interesting from this point of view.⁷⁰ Animals could bestow only the lowest degree of power; above these were ranged a cloud-appearance, and an eagle-winged human shape; above these again, the mere sound of a voice. The abstraction of mundane form from the apparition of the vision is in various forms one of the most distinctive characteristics of the Central Algonkian experiences.

We have few relevant myths from the Omaha, but one of them describes a fasting experience with another very marked Algonkian characteristic—the use of the fasting tent made for the occasion by father or mother. It is almost a formula. "At length he said, 'Father, let my mother make a tent for me.' And his mother made a tent for him." That is, he announced that he intended to fast, and the family complied.⁷¹

⁶⁹ Methvin, *Analele*; Matthews, *Navaho Legends*, p. 164.

⁷⁰ J. O. Dorsey, *Siouan Cults*, p. 393.

⁷¹ J. O. Dorsey, *The Cegiha Language*, p. 185.

The Pawnee and the related Arikara stand alone in an exuberant development of sleight-of-hand, which was the prerogative and passport of the shaman. It is sleight-of-hand first and foremost that is taught the initiate in the animal lodges of the *Traditions*. The great Twenty Day Ceremony of the shamans was one long legerdemain.

But any survey of the Pawnee vision complex must be inadequate unless we take also into account a difference in psychological attitude which places them at the opposite pole, for instance, from the Crow. For the Crow attitude, the following text is typical: "Medicine Crow fasted and prayed for four days. He cut off a finger joint and offered it to the Sun. 'Sun, look at me. I am poor. I wish to own horses. Make me wealthy. That is why I give you my little finger.'"⁷² Or in an old man's phrase: "I was going to be poor; that is why I had no vision."⁷³ But the Pawnee have made the transition from this view of the vision as a mechanistic means of controlling forces and events, to a view of it as a means of spiritual contact. That is, a certain transfer of emphasis has taken place from material to spiritual values.

Take the story of the warriors who appealed to the keeper of a bundle. "The owner of the bundle spoke as each man passed his hands over his head and arms, and said, 'My friends, I take pity on you; but it is not I, it is these things before me, although they are dead, and the Sun, who must help you.'"⁷⁴ Or this advice of a shaman to a candidate about to fast for a vision: "'Be sure to be poor in heart. Talk to the stone, and let all your wishes be known. Say that you are poor, and keep nothing back.'"⁷⁵

The Omaha, as well as the Pawnee, have discovered this special spiritual significance in *wakan* experiences. The old men counseled their grandsons thus: "Walk ye in remote places, crying to Wakanda. Neither eat nor drink for four days. Even

⁷² Lowie, *Crow Tobacco Society*, p. 117.

⁷³ Lowie, *MSS., Crow Religion*.

⁷⁴ G. A. Dorsey, *The Pawnee*, p. 87.

⁷⁵ G. A. Dorsey, *Pawnee Personal Medicine Shrine*, p. 497.

though you do not gain the power, Wakanda will aid you. If you are as poor men, and pray as you cry, he will help you."⁷⁶

The very great diversity of the vision pattern even in one culture area such as the Plains is therefore evident. Not only are the general traits unevenly distributed and even entirely lacking in certain tribes, but local developments of one kind and another have overlaid the common pattern till it is at times hardly recognizable. A blanket classification under some such head as the "acquiring of guardian spirits" leads us nowhere. Correlated with the use or disuse of torture; with the existence of a shamanistic caste, or the free exercise of supernatural powers by all men; with the conception of visions as savings-bank securities or as contact with the compassion of Wakanda,—are and must be psychological attitudes of the utmost diversity which make of Plains "religion" a heterogeneity which defies classification. Animism, magic, mana-ism, mysticism—all the known classifications of religion—jostle each other in this one area; and after all these headings were tabulated, the real diversities would still remain outside. For this reason, topical studies of religion must lack the rich variety of actuality, and imply a false simplicity. Is it not our first task to inquire as carefully as may be in definite areas to what things the religious experience attaches itself, and to estimate their heterogeneity and their indefinite multiplicity?

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⁷⁶ J. O. Dorsey, *Siouan Cults*, p. 381.

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MEDICINES USED BY THE MICMAC INDIANS

By WILSON D. WALLIS

THE following list of diseases and their treatment was obtained by the author from native informants of the Micmac tribe (settlement at Pictou Landing, Nova Scotia) in the summers of 1911 and 1912. This information I submitted to Dr. Wilson Wood, then of the faculty of the Medical School of the University of Pennsylvania, who furnished observations regarding the value of the cures which are here appended. Dr. Wood's observations have been put in brackets. Many of these remedies, like many of the diseases, are of European origin.

Diarrhoea. "Wild Chocolate" (*egwitkewe*) will stop it gradually, though not suddenly.

Purgatives. The bark of easel when boiled into a tea is a purgative if, after taking, the abdomen is rubbed from above downward; if rubbed from below upward it causes vomiting. Pipe-stem wood (alder?) (*niskAnAmusi*) is a good physic. If boiled and mixed with the fat from any part of a porcupine it is as effective as castor oil. [The good effect of this combination is presumably due to the fat which is laxative, while alder bark, containing tannic acid, would tend to the opposite effect.] Molasses [molasses is also laxative] and lard combined is said to be a good physic much used by adults; a new-born child is given as a physic the fatty oil of the raccoon or porcupine. The root and bark of the gooseberry vine are scraped and mixed with grease and a little sugar. "It will go right through you." No ill effects ensue from getting wet or from working while taking this physic. *SAgebAnigewe* (a species of wild carrot?), a red blossom plant with three leaves clustered around the stalk, growing along brooks, is steeped, and is a mild purgative. The roots of *ukskusaligAn*, a plant growing in low swampy places, is beaten until soft, then tied around the waist much as a poultice would be applied. It is declared to be as effective as salts.

Whooping cough. Mix skunk grease with the grease from the red squirrel and perhaps a little of the fat of the latter. It induces vomiting and insures recovery. A dose should be given three or four times a day. [It is quite possible that this nauseous dose does cause vomiting and so relieve the spasm of coughing by effecting a general relaxation but it can have no effect on the course of the malady.]

Colds, coughs, and la grippe. The tea of hemlock bark and of the bark and needles and twigs of the white pine are used. [The volatile oils contained in these evergreens have long been credited with a good effect in bronchitis. This is probably due to the fact that they stimulate the bronchial secretions in their passage through the lungs.] A tea is made from the bark of moose wood and of wild turnip pounded together and sweetened.

Ground- or spruce-hemlock is boiled and whiskey added. This is good for the bowels also, and for any internal trouble. The bark of the black spruce [see preceding brackets] and of the white maple of second growth, i.e., the shoots from the stump of an old tree, are scraped and steeped. A physic should be taken prior to a dose of this.

The tops and leaves of *mAsusidjAl*, "sweet palm," are boiled. This will also ward off consumption and gradually, not quickly, cure diarrhoea.

The *kaad jumAnAktsi* (literally, "crow's nest plant,"—the mistletoe?) is a good medicine for any ailment, especially for colds and particularly in the case of infants. The staghorn sumach (*Rhus typhira* or *hirta*) is good for sore throat. [The astringent properties of the tannic acid contained herein would account for the good result.] The *mAdaweswalu* (Yarrow, *Achillea millefolium*) cures a cold by inducing a sweat. [Yarrow and juniper contain volatile oils which, acting as a counterirritant and relieving pain, may account for its reputation in sprains and bruises.] It should be boiled about an hour and taken in warm milk. In about a half hour it causes the patient to sweat and drives out the cold. Lay it on coals for about half an hour, leaving it there until thoroughly dried, then remove and mash with a stone into a fine powder. Rub this dry powder, using

for this purpose bark or green leaves, over a swelling, bruise, or sprain, and on the following day a cure will be effected. *Tcigawabi*, "bass root," is good for a cold or for sore eyes.

Cuts and wounds. Tea from the bark of the white spruce is a good salve; musk-rat roots (*kiweswusk*) for open wounds. Resin and mutton tallow are used. [The mutton tallow acts merely as a protectant. The resin is slightly antiseptic. Juniper is also used for this purpose by the Hudson Bay Indians.] *Tcigawabi*, spikenard, is boiled until it becomes soft, then applied to the wound. For a severe cut wash the wound with castile soap and apply bees' wax; remove this and apply mutton tallow. The wound will soon heal. Juniper gum will make it heal too rapidly. If you put juniper gum [see preceding brackets] on a wound it will heal so quickly you will think you have never been cut. "I knew an Englishman who cut his knee badly into the bone. He put human excrement on it, tied it on with bandages, then covered it over with balsam to keep the odor in. In two or three weeks the flesh and bone were entirely healed. Another man broke his collarbone when firing a gun. An old Indian woman from Restigouche put excrement and balsam gum on it and cured it." Red willow chewed up fine and placed on a fresh cut will stop bleeding. Bark of white pine scraped and boiled until soft, mixed with grease, will cure a wound. To stop bleeding chew the leaves of the pigeon-berry plant until they become soft and pliable and apply to the wound. Boil alder bush until the bark is soft, then remove it. This will be done almost immediately after the boiling point is reached. If it boils long it will get too strong. Chew and swallow it for bleeding or for hemorrhage of the lungs. [These all contain tannic acid which when *locally* applied tends to stop bleeding by constricting the blood vessels. The natural inference among the ignorant that they would also be beneficial in hemorrhage from the lungs is without foundation.] Drink the sap and water found in the little bark on pine trees, mixed with a little warm water, for hemorrhage. Relief will be given almost instantly.

Tuberculosis of the lungs. When getting tuberculosis move around outside and do not spit on the floor. Peel the bark

from a juniper tree as far up as possible. Then cut the tree down. In the wood, which has been until then covered by the bark, you will find little lumps. Cut these and get the sap which exudes from them. Mix this with brandy and allow to stand over night. Scrape off a small amount of skunk-cabbage and add to this. When better, take a physic to purify the blood. A walk in the morning and one in the evening will further aid recovery.

Defective hearing. The urine from a porcupine's bladder dropped into the ear and kept there by wads of cotton will improve defective hearing.

Earache. Pour into the ear either tea from boiled sumach, or that from skunk grease. [The oil retains heat which relieves the pain.]

Sore or weak eyes. Pour vinegar on a porous pebble, allow to dry, then tie the pebble over the eye. The vinegar will go into the eyeball and cure sore eyes or defective sight. The sore eyes of a man are cured by the urine of a little girl about four or five years old; those of a woman by the urine of a boy of about that age. "When I injured my eyes last year I treated them with the urine of a little girl about a year and a half old. But for that I should have been entirely blind. Now my eyes are as well as ever they were. Do not tell any one what you are doing, but if your eyes become sore and you have the opportunity, try the urine of a little girl."¹

Toothache. Scrape the bark of *kAldjimAnAksi* (wax root) and steep it. Place this on cotton and put in the affected tooth. Wash the face in cold water, throw the water away, and forget about the tooth and the water. (This is European.)

Headache. Tie skunk-cabbage up in a bundle and smell it. [Nervous or hysterical headache may be relieved by this ill-smelling plant. Bad odors seem to have a beneficial psychic effect in such conditions.] Do the same with the roots of the wax-berry plant. The shed skin of a snake worn in the hat-band or tied around the head will cure headache. One old man dis-

¹ The belief in the efficacy of human urine is very widely spread in primitive culture as well as among the European peasantry. The belief that one must use the urine of the opposite sex is also commonly found—as, e.g., in Australia.

approved of this because of aversion to snakes. Grate wax-berry root fine and snuff it.

Rheumatism. Rub with raccoon or, better, skunk grease. Porcupine grease is equally good. [These oils merely facilitate massage.] The grease is procured by skimming the broth. The fat of the turtle is a good lubricant, also the contents of the gall bladder of any animal.

Sprains. Wrap juniper balsam around the affected part with eel skin or merely apply the eel skin as a tight bandage. "My wife had sprained her back and could not walk without putting each hand on a knee; juniper gum cured her." A plaster of juniper gum will remove the soreness and all the pain. The plaster will move around of itself and will not stay in one place long, no matter on what part of the body it be put. "A man was badly injured by a fall and unable to sit or walk about. My grandmother's mother told the people to put juniper gum on the helpless portions of his body. He was soon sitting up straight and was as well as any one."

Childbirth. Fresh milk and boiled ground-hemlock (not too strong) are given to the mother. [Ground hemlock yew is used by ignorant Negroes in the southern states to produce abortion but has caused many fatalities.] A tea made from the black haw or stag-bush sloe (*Viburnum pomifolium*) is given to women both before and during parturition. A tradition is current to the effect that the Virgin Mary carried this latter plant around with her when she was with child. [Viburnum is credited with distinct virtues by many physicians, but there is grave doubt of its real value.]

Colic. The tops or combs of balsam fir make a tea which cures colic. [The volatile oil in balsam gives a sense of warmth and comfort in the stomach, grateful in mild cases of colic.] The bark of the round-tree (*epsimusi*) shrub is cut off and chewed raw to alleviate a pain in the stomach.

Diphtheria. Drink tea made from alder bark.

Convulsions. To cure a person of fits, cut the feet from a mole or from a mole skin and place these on any part of his body. If possible open the patient's mouth and put one of them down

his throat. If you cannot get the feet split, open the skin and scrape the inside of it. This will cure for the time being, but not permanently. A final cure is effected by the use of the codfish louse, a parasite found on the gills or other part of the cod. My informant told me of one case in which a woman was cured in a few hours by hanging a piece of this, sewed in canvas, around her neck so as to fall over her chest. She had suffered an entire summer. It is essential that the patient should not know what is effecting the cure.

Worms. Eat dults, a seaweed, raw.

Saltrheum. Apply axle-grease.

Ringworm. Spit on ink powder and rub this on the afflicted part.

Corns. Rub with the sulphur from matches.

Measles. Drink the fresh dung of sheep dissolved in water. Previously the dung of deer was used. This will drive the measles out and insure speedy recovery.

Kidneys. Whenever there is any trouble with the urine, use the tea of white pine. [Tea made from white pine will cause an increase in the action of the kidneys, chiefly because of the large amount of water, but also to a slight extent from the stimulating effect of the volatile oil of pine.]

Festers. For festers or a fevered body cover the entire body with alder leaves, first pulling out the stems. Allow them to remain on until they wither, when a cure is effected. If it is winter and the leaves can not be had, cover the body with alder bark.

Smallpox. Drink a strong potion of princess pine, black cherry bark, wild turnip, beavers, castors, and honey. Take a teaspoonful morning and evening. Smallpox is severe on Indians (they say) because of the texture of their skin. That of white people breaks easily, whereas the skin of the Indian is very tough.

Miscellaneous. If a dog gets porcupine quills in it, feed it fat pork; the quills will then pass out of the animal's body.

The buttercup is good for cancer. It should be laid over the diseased part and will draw out the sickness.

Gold-root (*wisakiwes*) chewed raw will cure chapped or cut lips.

Lamb-kill (*kagipul* or, more commonly, *nebitck*) will draw out the pain from a disaffected part of the body. For this purpose it should be pounded into a powder, mixed with oatmeal porridge, and applied as a poultice.

The roots of *kuldjimAnaksil* (*Myrica cirifera*), wax myrtle, will cure inflammation. They should be pounded, soaked in water, and applied at a temperature almost that of the boiling point.

Wabegpagosi, the rough cow parsnip (*Heracleum sphondylium*), when green and light in color, is good medicine for women; when dark and riper it is good for men.

The buttercup, the virtues of which have already been recorded, is effective medicine if picked after coming from church service on St. Anne's day (July 26th), but not when gathered on other days.

In concluding his observations regarding these remedies of the Micmac, Dr. Wood says: "Many of the statements made by the author's informant are obviously too indefinite to understand or criticise. Most of the practices recommended are unquestionably based on superstition and some if followed must be absolutely harmful. A few seem to be the result of favorable experience and have their analogues in methods employed by more civilized peoples. Nearly all of these, however, are, as might be expected, extremely crude."

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THE TRADITIONAL ORIGIN AND THE NAMING OF THE SENECA NATION

By FREDERICK HOUGHTON

WHEN the Senecas first became known to Europeans they lived in a few large towns in the fertile country of what is now New York between the Genesee River and Canandaigua Lake. Traders, explorers and missionaries visited them there and described them as being well established in permanent towns. Seemingly they were autochthonous there, or, at least, their occupancy was of long standing. That they believed this is evidenced by a tradition according to which they originated in that delightful region.

The tradition of the origin of the Seneca Nation in the central New York valleys has reached us through a source which must be considered authoritative, for it was recorded as it fell from the lips of a white captive of the Senecas, one who had lived amongst them for a long lifetime. This captive was Mary Jamison, the "White Woman of the Genesee," or to give her the appellation bestowed upon her during her adoption ceremonies, Deh-he-wam-is.

Mary Jamison was the daughter of an Irish settler, one of those hardy souls who in the middle of the eighteenth century settled on the remote frontier in the valleys of northwestern Pennsylvania. She was captured by a Shawnee war party and taken to the Seneca town of She-nan-je, on the Allegheny River, where she was adopted by two Seneca women. A few years later she married a Delaware, and upon his death, which occurred after two children had been born to her, she married a Seneca. She reared a family of children and after a life of hardship, such as was incident to the Senecas during the stormy period of the American Revolution, she died in a cabin on the Buffalo Creek Reservation. In her old age she told the story of her life to Mr.

James E. Seaver, who published it. In this biography occurs incidentally the Seneca tradition of the beginnings of the nation.

As transcribed by Mr. Seaver this is as follows:

The tradition of the Seneca Indians, in regard to their origin, is that they broke out of the earth from a large mountain at the head of Canandaigua Lake; and that mountain they still venerate as the place of their birth. Thence they derive their name, "Ge-nun-de-wah," or "Great Hills," and are called "The Great Hill People," which is the true definition of the word Seneca.

The great hill at the head of Canandaigua Lake, from whence they spring, is called Genundewah, and has for a long time past been the place where the Indians of that nation have met in council, to hold great talks, and to offer up prayers to the Great Spirit, on account of its having been their birthplace; and, also, in consequence of the destruction of a serpent at that place in ancient time, in a most miraculous manner, which threatened the destruction of the whole of the Senecas, and barely spared enough to commence replenishing the earth.

The Indians say, that the fort on the big hill, or Ge-nun-de-wah, near the head of Canandaigua Lake, was surrounded by a monstrous serpent, whose head and tail came together at the gate. A long time it lay there, confounding the people with its breath. At length they attempted to make their escape some with their hominy blocks, and others with different implements of household furniture; and in marching out of the fort walked down the throat of the serpent. Two orphan children, who had escaped this general destruction by being left on this side of the fort were informed, by an oracle, of the means by which they could get rid of their formidable enemy—which was, to take a small bow and a poisoned arrow, made of a kind of willow, and with that shoot the serpent under its scales. This they did, and the arrow proved effectual; for, on penetrating the skin, the serpent became sick, and, extending itself, rolled down the hill, destroying all the timber that was in its way, disgorging itself, and breaking wind greatly as it went. At every motion a human head was discharged, and rolled down the hill into the lake where they lie at this day in a petrified state, having the hardness and appearance of stones; and the Pagan Indians of the Senecas believe, that all the little snakes were made of the blood of the great serpent, after it rolled into the lake.

To this day, the Indians visit that sacred place to mourn the loss of their friends, and to celebrate some rites that are peculiar to themselves. To the knowledge of white people, there has been no timber on the great hill since it was first discovered by them, though it lay apparently in a state of nature for a great number of years without cultivation. Stones in the shape of Indians' heads may be seen lying in the lake in great plenty, which are said to be the same that were deposited there at the death of the serpent.

The Senecas have a tradition, that previous to, and for some time after their origin at Genundewah, the country, especially about the lakes, was thickly inhabited by a race of civil, enterprising, and industrious people,

who were totally destroyed by the great serpent that afterwards surrounded the great hill fort, with the assistance of others of the same species; and that they (the Senecas) went into possession of the improvements that were left.

In those days the Indians throughout the whole country as the Senecas say, spoke one language; but having become considerably numerous, the before-mentioned great serpent, by an unknown influence, confounded their language, so that they could not understand each other; which was the cause of their division into nations—as the Mohawks, Oneidas, etc. At that time, however, the Senecas retained the original language, and continued to occupy their mother hill, on which they fortified themselves against their enemies, and lived peaceably, until having offended the serpent, they were cut off as I have before remarked.

An interesting variant of this tradition was given by Cone, a Seneca of the Tonawanda band, to Henry A. S. Dearborn, Commissioner for Massachusetts, at a council held on the Buffalo Creek Reservation in 1838. Cone informed him

that there was a tradition amongst the Senecas, that their nation was at one period established in a large village on a high hill, with a spacious broad flat top, near the southern end of Seneca Lake; and to more effectually defend their commanding position, the sides of the hill were cleared of all the trees and shrubs, so that an enemy could not advance without being exposed to view and attack.

Thereafter is a story of the great serpent which encircled the hill, and a tradition explaining the meaning of their name. In this Cone said, "For the mountain residence of the Senecas, and from whence they date the origin of their nation (sic) their original name was Jo-no-do-van or Great Mountain, but it ultimately was changed to Non-do-wan-gan which is the present Indian name of the Tribe."

In this story the hill has been shifted from Canandaigua Lake to Seneca Lake, but the name is still derived from the ancestral hill.

This serpent story is common to others of the Iroquoian family. An almost identical story was told (in 1912) by Catherine Johnson, a Wyandot, residing at Wyandotte, Oklahoma.

In this story a boy found a small snake which he kept as a pet and fed until it grew to enormous size. Finally it devoured the boy, blockaded the only path to the Wyandot village, and swallowed the people as they tried to escape. A boy and a girl

who lived outside the village were the only survivors, and this boy finally killed the serpent.¹

Emanating from one who must have been thoroughly familiar with the story in its Seneca form, and seemingly corroborated by the actual residence of the Senecas in the immediate vicinity of the traditional birth place of the nation, Mary Jamison's story has been accepted without question as the correct native origin legend. Other authors have quoted it until it has become a settled belief amongst those interested, that the Seneca Nation did actually originate in the Canandaigua Valley.

This tradition has to do with two main subjects, (1) the origin of the nation, or rather the origin of the Iroquois, and (2) the separation of the nations of the Confederacy. Each of these may be examined by itself.

Separated from its context, and somewhat simplified, the story of their origin is as follows:

The Senecas believed that they broke out of the earth at a great, treeless mountain at the head of Canandaigua Lake. They were preceded in their occupancy of the country by a race of "civil, enterprising and industrious people." Their name was derived from this hill. They met there later in councils.

According to the story of their separation, the village of the Senecas on their ancestral hill was surrounded by a serpent which destroyed all who attempted to escape. This beast was killed by a boy. So terrified were the survivors that they scattered and became the five nations constituting the League. In the struggles of the serpent it broke down all the trees on the hill and this treeless condition became permanent.

The portion of the story centering about their origin may be further divided into two parts. The first deals with the origin of the nation, the second with the origin of the name. The first makes the Senecas break out of the earth at a great treeless mountain at the head of Canandaigua Lake. According to the second part their tribal name, Genundewa, was derived from this emergence from the great hill.

¹ Geol. Survey of Canada, Mem. 80, p. 146.

In localizing this tradition the bareness of the ancestral hill has appealed to every author, and this has connected it naturally with a hill on the east side of Canandaigua Lake, six miles below its head, which from its treeless condition has been named Bare Hill. That this treeless condition has existed there for a long time there can be no doubt. The first settlers recorded that they were under no necessity of clearing it and were enabled to plant at once. It has been stated, upon what authority no one seems to know, that a fort once existed on its top, but of this fort there now exists no vestige.

That the Seneca Nation established a village on or near Bare Hill seems unsupported by historical or archaeological evidence. So far as is known there is no village at or near Bare Hill which can be ascribed to an early pre-European Iroquoian people. There is a site at Vine Valley, at the foot of the hill, and from the graves of this site numerous articles have been taken, but this is undoubtedly non-Iroquoian and therefore necessarily not Seneca. Mr. Parker, the New York State Archaeologist, makes a statement regarding these articles which bears directly upon their origin. He says, "the culture represented is similar to that of moundbuilding Indians of New York and Ohio."² It seems to be the site of a village of non-Iroquoian people, possibly Algonkian, or a wandering band from the lower Ohio River, part perhaps of the "civil, enterprising and industrious people" whom the Senecas found living there.

Following the tradition, Mr. D. D. Luther, a geologist in the New York State Education Department, endeavored to localize the origin of the Senecas, in an article entitled "Nundawao, the oldest Seneca village." He followed other writers in identifying the ancestral hill with Bare Hill, but he separated the village from the hill by assigning the "oldest village" to the vicinity of Naples six miles away. He based his article upon certain artifacts which he had collected near Naples, and upon the fact that a historic Seneca village had once existed there. But this Seneca village was the village Koyendage known to have been established there during the Revolutionary period and until the first

² Bulletin N. Y. State Ed. Dept., 173, p. 100.

settlers arrived, and is thus of very late, post-European times; and the articles which he found are mainly of undoubted non-Iroquoian type, collected from two small camp sites on the flood-plain of West River. Of them Mr. Parker reports, "Mr. D. D. Luther during the year sent in 440 specimens from an early Algonkian site near Naples, Yates County." Without doubt, then, this site can not be the prehistoric ancestral village where the Senecas originated. Yet unfortunately the United States Bureau of American Ethnology in its "Handbook of American Indians" accepts Mr. Luther's statement without question and states definitely that "when first known they occupied that part of w. New York between Seneca Lake and Geneva (sic) r. having their council fire at Tsonnontowan near Naples in Ontario County." (Hewitt.)

It is doubtful whether Mary Jamison, when she alluded to the great mountain at the head of Canandaigua Lake, had in her mind Bare Hill, though ever since it has been identified with the hill of the tradition. She says only that it was at the head of the lake and that it was bare. Bare Hill is not at the head of the lake, although it is treeless. Yet other hills at the head of the lake would have answered the description of bareness equally well. Sutton (1851), quoting Parrish in his "Annals of Naples," says, "The lofty hills on either side of Koyendage were so destitute of timber that a deer might plainly be seen from one extreme end to the other." Koyendage was the Seneca village which the first settlers found on the present site of Naples. This village was a gathering place for councils and so further answers the description of the ancestral village which was a meeting place for that purpose. On the other hand, no council is known to have been held at or near Bare Hill. There seems then every reason to suppose that the great mountain of the tradition was not Bare Hill but one of the hills which encircle the valley at the head of Canandaigua Lake.

"Thence they derived their name Ge-nun-de-wah or Great Hill." The earliest mention of the name by which the Senecas were known to themselves and their Iroquois kin was by Champ-lain who received it from the Hurons. His rendering of it was

"Chonontouarouons." Later the French called them Sonnontrerrhonons. Mary Jamison's rendering, as transcribed by Mr. Seaver, was "Ge-nun-de-wah." These renderings, and many others with different spelling, are imperfect renderings of the Iroquois name for the people whom we know by an imperfect Algonkian name as Senecas. Their Iroquois name was "Djiionondowanen," meaning "the people of the great mountain." The reference seems to be, not so much to a great hill, as to the fact that the people were hill people, mountaineers, and this sense is preserved in the language of the Delawares who knew them as Maechiachtinni, great mountain people. It is evidently not a mere coincidence that their towns almost invariably crowned high hills, and the name "hill people" may reasonably be supposed to be derived from a long residence amongst high hills.

In fact every evidence seems to point to the migration of the Senecas into central New York from the high hills of Chautauqua County, and it seems probable that the "oldest Seneca village" instead of being at the head of Canandaigua Lake must be looked for much farther west.

The origin of the Seneca Nation as a nation is unknown. That it was a nation and, as such, an important constituent of the Iroquois Confederacy when it was first known to the Europeans is an historic fact. How long the people known to us as Senecas had been banded together before the formation of the Confederacy, and where these people were seated when they crystallized into a nation can never be known. This much is known, however, that strong Seneca villages existed in pre-European times, as far south as the upper valley of the Genesee River and as far west, at least, as the Conewango valley. It is an undoubted fact, also, that these people were immigrants into central New York, moving from the west toward the east into a country already occupied by a different people.

That portion of the tradition pertaining to the origin of the Senecas seems to be an attempt on their part to account for their name, yet it may be entirely possible that there may be a grain of truth in it and that at the head of Canandaigua Lake different bands of them then moving slowly from the valleys about the

heads of the lakes banded together into the nation which later was to become one member of the great Confederacy.

The Huron branch of the Iroquoian family had a tradition of the migrations of the Senecas. Of this tradition several versions are recorded by Mr. Barbeau.³ According to two versions of this tradition the Wyandots (Hurons) and the Senecas lived peaceably together along the St. Lawrence near Montreal. According to one version they were established near Lake Ontario. While there an old chief refused to allow a Seneca girl to marry a young Seneca warrior. In revenge she married a Wyandot on condition that he would kill the old Seneca chief. This he did and there resulted the condition of warfare which existed when Champlain first met the Hurons. In the beginning of the war the Wyandots moved westward to the Niagara but they were driven thence to the territory about Georgian Bay where they were found by Champlain. The Senecas then occupied the land about the Niagara River.

The first allusion to the Seneca nation in a European narrative was made by Samuel de Champlain in his description of his voyage of 1615. In that year he had made the difficult journey from his newly established post at Quebec to the villages of the Hurons, in the country southeast of Georgian Bay to which they had been driven. These persuaded him to join a war party against their enemies, the Entouhonorons, an Iroquoian people south of Lake Ontario. The Hurons wished the aid of an allied nation, the "Carantouannais," and to secure their cooperation Champlain sent one of his men, Etienne Brulé, to their town, Carantouan. Brulé was obliged to pass through or around the country of an enemy nation, the name of which Champlain recorded as "Chouontouarouons." That this was the Seneca nation can hardly be doubted. Carantouan was situated on a river which flowed southward, and which Brulé afterward explored to the sea. This was certainly the Susquehanna. To reach the Susquehanna from Huronia Brulé must have passed through or around the country of the Sonnotouans, our Senecas, who thus seem to be identical with Champlain's Chouontouarouons.

³ "Huron and Wyandot Mythology," *Memoir 80*, Geological Survey, Canada.

The name "Sonontouan" was not applied to the nation until 1635. In that year Father Brebeuf, then resident missionary amongst the Hurons, noted a war then existing between the Hurons and the "Sonontrerrhonons," and the same year he included them in a list of Iroquoian nations, kindred to the Hurons. From this time onward the French usually applied this name to the nation though many ways of spelling it were in common use. As already stated Mary Jamison sounded it as "Ge-nun-de-wah." In 1771 Lewis Evans placed on his map the name "Chenandowanes" as the name of an Indian village on the Genesee River.

The term "Sonontouan" was never used by the Dutch of New Netherlands and seldom by their successors, the English. Both of these employed the Algonkian name "Seneca," a term originally applied by the Algonkian people along Hudson River to all the Iroquoian nations west of them. The use of this Algonkian term for an Iroquoian nation is now firmly fixed, not only amongst our own people, but amongst the "Senecas" themselves, being employed at least when they are speaking the English language, and it was perpetuated officially by their use of it when they incorporated under the laws of New York as "The Seneca Nation of Indians."

The first use of the name "Senecas" by Europeans occurs on a map which was appended to a report submitted to the States General of the Netherlands in 1616. It is placed a little southwest of the name "Maquas" (Mohawks), and this peculiarity of situation requires a somewhat detailed explanation.

The information appearing upon this map is a direct consequence of the desire of certain merchants of the Netherlands to extend their trade to new markets and to the efforts of the States General to promote this new and extended trade. In 1606 William Usselinx brought before the States General a plan for a company to trade to the west coast of Africa and the east coast of America. This plan was favorably thought of but was not acted upon at that time. In 1609 Henry Hudson, then in the employ of the Dutch East India Company, attempted to find a passage through the continent of America to India, by exploring

the river known to the Spaniards at that time as the San Antonio but which later was named after the great explorer himself. A map of this had been made in 1571 by a Portuguese map maker, but neither Spain nor Portugal had made any attempt to follow up their explorations by trading or colonizing. In the delightful and populous country described by Hudson the Dutch merchants saw an opportunity, not only to extend their trade but to hamper the activities of their enemies, the Spaniards, and during the next five years several trading and exploring expeditions to the Hudson and the St. Lawrence Rivers were fitted out in Dutch ports. Those merchants who were most interested in these voyages wished to obtain a monopoly of commerce with the new lands, a monopoly designed to reimburse them for their necessary expenditures in exploring. In 1614 the States General drew up a General Charter under the provisions of which any person or company who discovered any new lands was allowed a monopoly of trade with those lands for four years. This was immediately followed by the formation of the West India Company, to which was granted for three years the exclusive right to trade with the newly explored country to be named New Netherlands. In order to have this monopoly extended, the company merely had to send out exploring parties from time to time and report immediately to the States General, and accordingly the Company's agents were under orders to extend their explorations as far into the hinterland as possible. One of these agents, Captain Cornelis Hendrickson (Hendrixen or Henricxsen), explored the coast carefully from Rhode Island to Delaware Bay and made his report in August, 1616. Appended to this report was a "Figurative Map," the data for which were supplied partly by Captain Hendrickson, partly by a certain "Kleynties" who with two others furnished all the data for that portion of the hinterland lying west of the Hudson and the Delaware Rivers. No written record of the journey of this "Kleynties" now exists, and it can only be inferred from the map upon which he recorded the data obtained. He is alluded to, however, in Hendrickson's report as follows:

He also traded for and bought from the inhabitants, the Minquaes, three persons, being people belonging to this Company; which three persons

were employed in the service of the Mohawks and Mahicans; giving for them kettles, beads and merchandize.

Evidently, then, amongst the trader-explorers sent out by the Company to extend their explorations westward were Kleynties and his two companions who were then in the service of the Mohawks and Mahicans, presumably at the new post, Fort Nassau. These men left their post, under orders, and explored westward and southward. They were captured by Minquas and carried by them to the coast or to the Delaware River where they were ransomed by Captain Hendrickson, who, under similar orders, was engaged in exploring the coast from the Hudson River southward. Kleynties furnished to a map maker in Holland a detailed account of his journey and this was used to supplement a map based upon the explorations of Captain Hendrickson. The information was gained at first hand and was accurate, and the map based upon it was equally accurate. On this map, as has been said, the name "Senecas" appears for the first time. That the Sonnontouans were meant is a natural inference, yet an examination of the map shows plainly that this inference is wrong.

Starting at a post on the Hudson amongst the Mahicans, probably Nassau (near Albany), the only post noted by Kleynties, they visited the Mohawk towns on the Mohawk River. That they went overland is evident by the fact that they left blank the junction of the Mohawk and the Hudson, of which they seem to have been ignorant. That this overland short cut, probably the present road between Albany and Schenectady, was the usual road is shown by Van Curler who used the same route in 1634.

From the Mohawk villages they went southwest to "Versch water," a lake from which a large river flowed southward. On a modern map Lake Otsego at once presents itself as corresponding to this "Versch water," not so large by far as Kleynties thought it was; though he evidently saw but one end of it for he left the other blank. He descended the southward flowing river which was the Susquehanna of our maps, passed three considerable branches which entered it from the west, and finally passed a still larger branch at the head of which he located the "Senecas." On

a modern map the Unadilla River answers this description. As to who these "Senecas" were we will learn presently. Meanwhile follow Kleynties down the river to a still larger tributary from the west on which were seated the "Gachooos." The Chenango seems to answer this description. His main river now turns towards the west and at its most westerly bend another tributary enters it on which are located the "Capitannasses." This coincides exactly with the Chemung which enters the Susquehanna at the point where it turns from its western course to its southerly course through Pennsylvania. Far back in the hills west of the river he located the "Iottecas." Farther south he entered the territory of the Minquas and, willingly or unwillingly, he proceeded down the river to a large tributary which entered from the east. He may have been, probably was, taken up Lackawanna Creek which he lays down in detail, and over the divide to the Delaware. There he was found and bought by Captain Hendrickson. The news of the capture of these men reached Champlain in 1615, he having learned it indirectly from the Carantouan allies of his Huron hosts in Canada.

The identity of the "Senecas" whom Kleynties located on the headwaters of the Unadilla River is shown by Arent Van Curler who met them in 1634. In that year he visited the Mohawks, then grouped in villages along the Mohawk River near the present Canajoharie and after a short visit amongst them he proceeded to the villages of another Iroquoian people whom he called the "Sinnekens." On his way he crossed a "kill that as the savages told me ran into the lands of the Minquaass." This could only have been a tributary of the Unadilla River. While amongst these "Sinnekens" he learned and applied their Iroquoian name which to him sounded like "Enneyuttehage." This word is equivalent to our word Oneida, and these Oneidas, the Enneyuttehage or Sinnekens of Van Curler, were the same "Senecas" of whom Kleynties had learned, and whom he had located in the same place.

Our application of the Algonkian term "Sinnekens" or "Senecas" to the Sonnontouans is consequent upon the Dutch use of the word to denote any of the New York Iroquois, not Mohawks.

When Dutch traders first entered the Hudson River they met only the Algonkian nations seated along its lower course. From these they learned the names of other neighboring nations, amongst them the Iroquois nation known to the Algonkian tribes as Maquas, Mahaquas, or Mohawks, the first of the Iroquois to come into contact with the Dutch traders. Before they met, the Dutch had already learned of these Mohawks by their Algonkian appellation and they continued to use it. Very soon, however, trading parties from other and unknown Iroquoian nations to the west of the Mohawks began to appear. These were grouped by the Mahicans under the general term "Sinneken," and the Dutch adopted this name to include all Iroquois not Mohawks. Not until 1634 did the Dutch learn and adopt the Iroquois names of the two nations of "Sinneken" next west of the Mohawks, these being the Oneidas and the Onondagas. The general name "Sinneken" then became restricted to the still more remote Goyoguens and Sonnontouans. Later still the Goyoguens became known by their Iroquoian name which has come down to us as Cayugas, leaving the name Senecas applied only to the most remote nation of the Confederacy, the Sonnontouans. Before the term Sonnontouan became known, or at least before it was officially applied, New Netherland was taken over by the English who adopted the Dutch names and used them in all official business. To the English, therefore, the Sonnontouans were Senecas, and the name Seneca thus applied was perpetuated, although occasionally they were called "Sinnodowane," seemingly a crude combination of "Sinneken" and "Sonnontowans."

BUFFALO, N. Y.

A NEW MAYA HISTORICAL NARRATIVE

BY RALPH L. ROYS

NEW light is cast on one of the most important episodes of Maya history, namely the overthrow of Chac Xib Chac and the conquest of Chichen Itza by Hunnac Ceel, the ruler of Mayapan, by a passage in the Book of Chilam Balam of Chumayel which appears to have escaped notice up to the present time.

At this time the Itzas had been in Yucatan for several hundred years. They had settled in Chichen Itza, had moved away to Chakanputun and had returned to Chichen Itza and established themselves as a great power in Yucatan. The Tutul Xius, later arrivals, had founded Uxmal, and about the year 1000 A.D. the cities of Chichen Itza, Uxmal, and Mayapan had formed a confederacy which probably resembled the one which Cortez found in the Valley of the City of Mexico. The entire country prospered under the rule of this joint government until about the year 1200 A. D. when Chac Xib Chac, the ruler of Chichen Itza, came to some sort of an understanding with the ruler of Izamal who was not a member of the confederacy. The city of Mayapan seems to have resented this and its ruler, Hunnac Ceel, with the aid of Mexican allies, defeated Chac Xib Chac and conquered the city of Chichen Itza. The ruins of Chichen Itza present considerable evidence of Nahua domination, so it is not unreasonable to believe that this city was ruled by the Mexican allies after its conquest. However, a still earlier Nahua occupation is also indicated.

We have five main sources for this information, all of which have been published and translated in Brinton's "Maya Chronicles" and which I will quote in so far as they relate to the event under discussion. The translations are partly my own but do not differ greatly from those of Brinton which I have followed wherever possible.

1. "9. Then were the katuns 11 Ahau, 9 Ahau, 6 Ahau. In 8 Ahau the governor of Chichen Itza was driven out on account of the plotting of Hunnac Ceel; and this happened to Chac Xib Chac of Chichen Itza on account of the plotting of Hunnac Ceel, the governor of Mayapan, the fortress. Four score years and ten years, it was in Tun 10 of 8 Ahau. That was the year in which it was depopulated by Ah Zinteyut Chan, with Tzuntecum, and Taxcal, and Pantemit, Xuchueuet and Ytzcuat, and Kakaltecat; these were the names of the seven men of Mayapan. 90.

"10. It was Katun 8 Ahau when they went to the fortress of Ah Ulmil the ruler on account of his banquet with Ah Itzmal Ulil, the ruler. Thirteen folds of katuns had passed when they were destroyed by Hunnac Ceel on account of the giving of the understanding."¹

2. "8. Ahau was when the governor of Chichen Itza was driven out by the conspiracy of Hunnac Ceel. Ah Zinteyut Chan, Tzuntecum, Taxcal, Pantemit, Xuchueuet, Ytzcoat, and Kakalcat were the names of the men. There were seven of them. It was because of the banquet with Ytzmal Ulil the ruler. There were thirteen folds of katuns when they were driven out by Hunnac Ceel on account of the giving of the understanding."²

3. "8 Ahau was when the Itza men were driven out of their homes for the second time by the conspiracy of Hunnac Ceel because of the banquet with Ah Itzmal. Thirteen folds of katuns had they settled there when the Itza men were driven out by Hunnac Ceel because of the giving of the understanding of those of Itza."³

4. "Thirteen katuns they ruled. Then the plottings were introduced by Hunnac Ceel, and the territories were destroyed. Then they went into the midst of the forests, into the midst of Xuluc Mul, so called."⁴

¹ Brinton 1882, p. 95.

² Codice Tizimin, fol. 21, reverse; Brinton 1882, p. 140.

³ Gordon 1913, p. 75; Brinton 1882, p. 155.

⁴ Gordon 1913, p. 78; Brinton 1882, p. 179.

5. "5 Ahau was when the land of Ah Itzmal Kinich Kakmo and Pop Hol Chan was destroyed by Hunnac Ceel."⁵

These are the only original sources bearing directly on these events which have as yet been published and translated, but Bishop Landa gives an account which explains to some extent the Mexican names mentioned in *Chronicles 1* and *2*: "The king Cocom began to covet riches and with this in view he negotiated with the garrisons of troops which the Mexican kings maintained in Tabasco and Xicalango to hand over to them the guard of the capital. In this way he brought Mexicans to Mayapan. He oppressed the poor and made slaves until the princes would have killed him but for their fear of the Mexicans."⁶

Examining some material less well known, we find an unpublished passage in the *Chilam Balam* of Tizimin which also refers to the event under discussion. It is preceded by the single sentence published and translated by Seler: "Eight Ahau was when it happened at Chichen as it was written down by the king of the people of Uxmal that Chac Xib Chac was trampled upon by Ah Nacxit Kukulcan."⁷ Seler goes on to show how this statement is borne out by testimony of the natives to the Spanish conquerors that the Maya religion was materially changed by one Kukulcan, or Quetzalcoatl, who came from Mexico. A little farther on in the manuscript we find the following obscure passage which is only of value in the light of the translation from the *Chumayel*: "8 Ahau was when Ulel Ytzmal was enmeshed by deceit because Ulil the ruler had sinned. This was the founding of the katun in the 17th katun when came the prophecy of the rule of holy Ytzam Caan. There came forth Ahau Caan and Hapai Caan when Ah Ytzmal Ul, the ruler, was enmeshed by deceit, when the tribute of the son of holy Itzmal came. And then there came forth the lord of the katun when the rule of Itzmal occurred. Then there came an end to Hapai Caan in the misfortune of Ah

⁵ Gordon 1913, p. 79; Brinton 1882, p. 166.

⁶ Landa 1900, p. 288.

⁷ "uaxac ahau uehci tu chichen, ca tz'ibtabi u yahau ah uxmal ca tali u chekeb u pach chac xib chac, tumenel ah nacxit kukulcan." Seler 1902-1908, vol. 1, p. 676.

Itzmal Thul . . . and Chac Bolai and Chac Xib Chac to their great misfortune which was brought by Itzmal enmeshed by deceit by the sin of the ruler Canul. . . . Then it was learned about by Kukulcan. Then they cut the throats . . . of all the nobles who joined in the departure of Hapai Can. These were the subjects who bore the guilt of their ruler. Then began the attempt of Itzom Caan and then came the introduction of the sin of the ruler Canul. Then Ahau Caan came forth from the wells here of wicked Canul."⁸

I have used the foregoing material only as an introduction to what I consider an interesting addition to Maya history and, in fact, the first new material published in many years which bears on the subject in question.

I might mention in passing that, as a sacrifice to the gods and in order to obtain prophecies for the coming year, it was customary to throw a number of victims at sunrise into the great cenote at Chichen Itza. At noon, if the gods were propitious, one of these would still remain alive. A rope was let down and the surviving victim was drawn up. The survivor delivered the message of the gods to the priests and rulers and received high honors from everyone. This striking custom is already well known, but that Hunnac Ceel, the mighty governor of Mayapan, began his career as such a victim is the startling fact which appears in the translation which follows:⁹

⁸ 'lai u hetz' katun uchi ichil uclahunpis katun, u than u tepal kul ytzam caan hoki ahau caanil, y hapai caan ti tabtabi ah ytzmal ul ahau, ti uchi patan u mehen kul itzmal ca hoki u tah katun ti uchi tepal itzmal ca tz'oci hapai caan tan u numya ah itzmal thul ca uli kuch tan yol caan y chac bolai y chac xib chac ox numya u pixan tan u mansic u numyail uai itzmal tabtabi tumen u keban yahau canule, lei tah mehen hapai can lae, ca natabi tumen kukulcane ca xoti u cal u yioh u yubob tulacal yal u mehen cu pactic u luk hapai caan, lei ah cuchteob u cuchah u keban yahau catun hoppi u tumtic itzom caan ca tal yocol u keban yahau canul ca hoki ahau caan u chichenob uai max canul ti hoki ahau oxlahunte u cuch."—Codice Tizimin, fol. 13 reverse and 14.

⁹ Gordon 1913, p. 3.

(p. 3)

"Ah Itzim Thul Chac was their commander at Ichcanzihoo. Uayom Chich¹⁰ was their priest at Ichcanzihoo, Canul, Yx Pop ti Balam.¹¹ Ucatul, Ah Kin Chable was their ruler at Cabal Xiu, their priest at Uxmal. The Chac was their commander. This was the priest.¹² Then Hapai Can was brought to Chem Chan. Here he arrived. Then he arrived at Kikil and at Uxmal. Chac Xib Chac was despoiled of his dragon,¹³ also Sac Xib Chac; and Ek Yuan Chac was also robbed of his dragon. Also they robbed Ix Sacbelis, so called, the grandmother of the Chacs. Ek Yuan Chac was their father. Hun Yuan Chac was their younger brother. Uooh Puc was his name. There was written a character on the palm of his hand; a character was written below his neck. One was written on the sole of his foot and one in the fist of the hand of Ah Uooh Puc.¹⁴ These Chacs were not gods. The only true God is our Lord Dios but they worshipped them at the command of the wise man of Mayapan, Ah Kin Coba, the priest in the fortress.

¹⁰ The meaning of Uayom Chich is uncertain. It seems to be a title, for on page 19 of the Chumayel I find the following sentence: "Ma yoltahob u bot patan Ah Uayom Chich: Ah Uayom Tunob Ah Uayom Siniltunob: Ah Uayom Balamob" which may be translated: "Those entitled Ah Uayom Chich, Ah Uayom Tun, Ah Uayom Siniltun, and Ah Uayom Balam did not wish to pay the tribute." *Uay* may mean room, bed, or couch; *chich* means bird; *siniltun* means level dressed stone; and *balam* means tiger, suggesting the tiger seats of Uxmal and Palenque. I suggest that these titles mean, "he who sits on the bird," "he who sits on the level dressed stone," and "he who sits on the tiger." This is confirmed by another phrase on p. 19 of the Chumayel for here we find: "lu uayob, tu poopob, tu tz'amob." *Poop* means mat and *tz'am* means throne, so *uay* must mean something very similar.

¹¹ The mat on the tiger.

¹² It is interesting to note that the office of Chac, apparently so important at this period, was filled at the time of the Spanish conquest by four old men who were merely laymen and assistants of the priest (Landa 1900).

¹³ The word "*can hel*" is translated in Beltran 1859, p. 228, as meaning dragon. The fact that *can* means serpent and *hel* is the root of the verb meaning to change suggests strongly that this was a serpent headdress similar to those on the bas-reliefs of the east chamber of the Temple of the Tigers at Chichen Itza.

¹⁴ "Among the twelve priests of Mayapan, one who was very wise married his only daughter to a young noble named Achchel. . . . The son-in-law who was well instructed in the science of his father-in-law wrote on the fleshy part of his arm certain letters of great importance in order to be esteemed and with this distinction settled on the coast and established himself at Ticoh where many followed him."—Landa 1900, p. 290.

(p. 4)

Tzulim Chan¹⁵ was at the west. Nauat was the guardian¹⁶ at the south gate. Couoh was the guardian at the east gate. Ah Ek was his companion. Ah Tapai Nok¹⁷ Cauich was the name of their governor, Hunnac Ceel, he who was cast [into the well] for Ah Mex Cuc.¹⁸

"Then they sought one flower. Then they sought the white mat. Then they sought two shreds of cloth. Then they sought the first fowl. Then they sought the mottled snail. Then they sought the white gourds called *homa*.

"Then they departed and arrived at Ppool where the remainder of the Itzas were swollen. Then they took for their mothers the women of Pool. Then they arrived at Ake where those of Ake were born. Ake was its name here according to their words. Then they arrived at Alaa. Alaa was its name here as they said. Then they came to Kanholaa. Then they came to Tixel where their words and teachings were interpreted. Then they arrived at Ninum where the words and teachings of the Itzas were many. Then they arrived at Chikin Tz'onot. Their faces were to the west. Chikin Tz'onot was its name here as they said. Then they arrived at Tzucopp where they remained apart under the anona tree. Tzucopp was its name here as they said. They arrived at Cahcab where the Itzas stirred the honey. Then it

¹⁵ Tzulim Chan is mentioned in various prophecies as symbolizing some misfortune. Chakanputun, where the Itzas once lost their homes, is similarly mentioned (Gordon 1913, p. 73).

¹⁶ The word *ah canul* which I have translated as guardian is not in any of the dictionaries or vocabularies at my disposal. However its use in the phrase on page 67 of the Chumayel: "*cah lohil ti jesu christo yah canul ca pixan*," "our redeemer Jesus Christ, the guardian of our souls," strongly indicates the meaning which I have given to it. Canul is the name of a province and a proper name as well. It is noteworthy that the Nahua guards of Mayapan retired to the province of Canul after the destruction of the city.

¹⁷ *Ah Tapai Nok* means "he with the ornamented mantle."

¹⁸ This name would appear to be that of a deified clan ancestor from the following passage on p. 86 of the Chumayel: "It was by them, the four lineages, who came from heaven, the sap of heaven, the juice of heaven, the governors, the rulers of the world, Cacaal Puc, Hooltun Balam, Hochtun Poot, Ah Mex Cuc Chan." "*Heklay tumonolob—canul chibalob—lalob ti caan—ah kab caan: ytz caanob, u k'elach uinicob—yahautil cab—cacaal puc—hooltun balam—hochtun poot ah mex cuc chan.*"

was drunk by Xkoh Takin (Gold Mask). And the honey was stirred and Cabilneba by name drank it.

(p. 5)

Then they arrived at Kikil where they took dysentery. Kikil was its name here as they said. Then they arrived at Panabhaa where they dug for water. Then they came to Cucuchilhaa where they stopped at the deep water. Then they arrived at Yalsihon. Yalsihon was the name of the settlement here. Then they arrived at Xppitah, also a town. Then they arrived at Kancabtz'onot. They departed and then they arrived at Tz'ula. Then they came to Pibhaltz'onot. Then they came to Tahaac. That was its name. Then they came to Ticooh. Those of Cooh insulted them. Ticooh was its name here. Then they arrived at Tikal, where they shut themselves in. Tikal was its name here. Then they arrived at Timaax where they made knaves of themselves. Then they arrived at Buctzotz where they covered the hair of their heads. Buctzotz was its name here as they said. Then they arrived at Tz'itz'ontun where began the seizing of the land by a strong man.¹⁹ Tz'iholtun was its name here. Then they arrived at Yobain where the alligator bewitched them through their maternal ancestor, Ah Yamasi, who ruled at the shore of the sea. Then they arrived at Sinanche where the devil bewitched them. Sinanche was its name here. Then they arrived at Cahchac. Then they arrived at Tz'euc. Their companions contended with one another. Then arrived the maternal ancestor of their companion and they all appeased their wrath together. Tz'emul was its name here. Then they arrived at Kini with Xkil Ytzam Pech, Xtz'euc, their companion,

(p. 6)

and they arrived with Xkil Ytzam Pech,²⁰ their chief priest. Then they arrived at Baca where the water was poured out by them. It was Baca here as they said. Then they arrived at Sabacnail

¹⁹ The expression used here, "*chuc lutum tz'itz'*," is a stock phrase of the prophecies. See Brinton 1882, p. 127.

²⁰ A later Ixkil Ytzam Pech is mentioned as the chief of Conkal at the time of the Spanish conquest in the Chronicle of Nakuk Pech. Brinton 1882, p. 219.

with their maternal ancestor, the first man, Ah Na. This was Chel Na, their maternal ancestor. Then they arrived at Benaa where they remembered their mother. Then they came to Yxil. Then they went to Chulul. Then they arrived at Chichicaan. Then they went to Holtun Chable. Then they came to Ytzamna. Then they came to Chubulna. Then they arrived at Caucel where they were all cold. It was Caucel here as they said. Then they arrived at Ucu where they said "*Y a u cu.*" Then they went to Hunucma. Then they arrived at Kinchil. Then they went to Kana. Then they arrived at Tixpetoncah. Then they arrived at Sahab Balam. Then they arrived at Taccumchakan. Then they arrived at Tixbalche. Then they arrived at Uxmal, and they departed. Then they arrived at Tixyubak. Then they arrived at Munaa where their words were soft. Then they went to Oxlochhok. Then they went to Chacacal. Then they went to Xocneceh. There were deer there. Then they went to Ppustunich. Then they went to Pucnalchac. Then they went to Ppencuyut. Then they went to Ppaxueuet. Then they arrived at Tixaya. Then they arrived at Tistis by name. Then they arrived at Tuchican. Then they arrived at Tixmeuac.

(*p.* 7)

Then they arrived at Hunacthi. Then they arrived at . . . zel. Then they arrived at Tamusbulna. Then they arrived at Tixcan. Then they arrived at Lop. Then they arrived at Cheemiuau. Then they arrived at Oxcahuanka. Then they went to Sabacelcaan. Then they arrived at Cetelac.²¹ [These are] the names of whatever towns there were and the names of the wells, that it might be learned, where they passed in their march, to see whether this district was good; whether the dwelling places were suitable here. They set in order the name of the district according to the words of our Lord Dios. He it was who created

²¹ Note the numerous word plays in the preceding on the Maya place names of which the following are a few examples:

"Ca talob Tixel ti chelhi u thanob ti chelhi u canobi"

"Calun kuchob Ninum ti numhi u thanob ti numhi u canobi"

"Ca kuchob Tikal ti u kalah ubaobi"

"Ca kuchob Buctotz ti u bucinahob u tzotzel u pollobi"

the whole world and then also set it in order. They named the district, they named the wells, they named the region, they named the land, because no one had arrived here, here in Ucalpeten, when we arrived here.

"Subinche, Kaua, Cumcanul, Tientun where the stones descended, Siçal, Sacii, Titz'ooc where the prophecy of the katun was fulfilled, Timocon, Popola where the mat of the katun was spread out. Tipixoy, Uayumhaa, Sabacan, Tinum where they said little, Timacal, Popola where they set in order the mat of the katun."²²

There was Tixmacculum where they interrupted with words, Tz'ithaasbon, Kauil, Tixmex, Kochilla, Tixxocen, Chunpak, Pibahul, Tunkas, Haaltunhaa, Kuxbila, Tz'itz'ilche, Ticool, Sital Pech, Chalante, where they appeased their anger, Ytzamthulil,²³ Tipikab where they were united in misery.

(p. 8)

. . . ansahcab, Tz'itz'omton together with their maternal ancestor, Tichechoctz'-iitz', Tz'itz'holtun, Popola, to the south to Sinanche. Then they came to Muci, Sacnictecheen, Sotz'il, here where they determined the katun together, Multumut was its name here, Mutul, Muxuppipp, Ake, Hoctun where they set up the first stone, Xocchelbohe, Sahcabhaa, Tzanlahcat, Human where there was noisy talk and noisy rumors about them, Chalamte, Pacaxua by name, here, as they said, Tekit where the remainder of the Itzas were scattered. Beside the well the iguana was swollen, Huh was placed here. Then they departed to Tz'otz'ile, Tiab, Bituncheen. Then came their entrance into Tipikal, that was the name of the well. Then they came out. Then they went to Pochuh, that was the name of the well where they roasted the iguana. Then they went to Mani where the prophecy was remembered

²² The *pop* or mat of the katun could mean either the coefficient of the day *Ahau* for which it was named or the unhappy events prophesied for that katun. In the same way the expressions *u cux haab* and *u cux katun* mean either the year and katun bearers or the miseries and toil of human existence. This text is worded much the same as the entry in the chronicle on p. 74 of the Chumayel which is also printed in Brinton 1882, p. 153, "*Oxlahun Ahau tzolci pop*" which means that the day 13 *Ahau* ending that katun was recorded in due order.

²³ Note the name of this town in connection with the Ah Itzim Thul Chac who was mentioned at the beginning of our text.

somewhat by them. Then they arrived at Titz'aan. Three days they were submerged.²⁴ Then they went to Ticul, Sacalumcheen, Tixtohilcheen where their minds were tranquilized. Then they went to Balamkin, the region of the priests, Cheenchomac, Sacnic-teeltz'onot, Tiyaxcab, Uman, Oxcum, Sanhil, Ichcansihoo, Ti-noh-naa-noh-pat, Poychena, Chulul. Then they arrived at Titzluum Cumkal²⁵ where the highest point of the region was situated, Siepach, Yaxkukul,

(p. 9)

Tixkokob, Tixueue, Tixueue was the name of the well here, Uhumtal where one part came out, Tixanimacal, Tixaan, Yumxul where they respected their father-in-law, Holtun Ake, Acanqueh, Tichahil, great Mayapan, the fortress, Yokolhaa. Then they went to Nabula, Tixmucuy, Tixkanhub, Tz'oyila. Then they arrived at Tisip. Tisip they said, Tisip they taught.²⁶

Then began the establishment of the country and of the rulers. There was the priest at Paloncab. There was the priest at Mutupul, as it was named. The priest at Paloncab was Ah May. The priest at Mutupul was Ah Canul, Uayom Chich, a stammerer as well, Yucatun Ah Chable, Ah Ichcansihoo, Holtun Balam, his son. He it was who took the plain of Yaxum. Then arrived the companions of the ruler. These were the friends of the ruler in the reign of Tun 11 Ahau as it was called. Then they founded the district and established the country. Then they settled Ichcansihoo. Then came those of Holtun Ake; and then came those of Sabacna. Then arrived the rulers together. These were of Sabacna, the head men, the leaders. Then they assembled at Ichcanziho. Here was the *ix pop ti balam* during the reign of Holtun Balam,

(p. 10)

during the reign of. . . . This was the head man . . . Xiu,

²⁴ This phrase, "*ox kin tz'amanobi*," recalls the expression "*ca kin tz'am, ox kin ts'am*" on p. 44 of the Chumayel, immediately following the creation story translated in Martínez 1912, pp. 14-15.

²⁵ Cumkal is called the head of the district and Mani the heart of the land on p. 25 of the Chumayel.

²⁶ "*Sip u than, sip u can*" is a stereotyped phrase of the prophecies and means literally "error was their talk, error was their teaching."

Tloual also. Chacte was the ruler. Chacte was the land where Teppanquis, their priest, seized the government. This was in Tabi. There was Ah Ppiste. He measured their land but Lubte was the land where they stopped, Uuclubcab. There was Ah May; but Ah Accunte established the corners of their land. There was Miscit Ahau who cleaned up the land; but the land was established by them. There was Hoyahelcab. It was here that they came to the use of their reason. They considered the ruler; they considered the use of their judgment.²⁷

"Then began the introduction of tribute. Tikuch was where the arrival of the tribute of the four men occurred. 11 Ahau was the name of the katun when the tribute was handled. At Cetelac it was given over. And then the tribute of Holtun Zuiva²⁸ came. It was at Cetelac where they agreed in their opinions. 13 Ahau was the katun when the governors received the tribute. Then began their reign. Then they began to be served. Then began the arrival of those who were thrown [into the well]. Then they began to cast them into the well in order that their prophecy might be heard by the ruler. Their prophecy did not come. There was Cauich Hunac Ceel. Cauich was the name of the man who raised his head at the mouth of the well

(p. 11)

at the south.²⁹ Then he was taken up and then came forth the declaration of the prophecy. Then began the prophecy. Then began the declaring of the ruler. Then he was set in the place of the rulers by them. Then began the declaring of the governor.

²⁷ The obscure passage consisting of the last few lines is composed largely of plays upon words. The story is told in such phraseology that the names of personages and places on one hand and of the events themselves on the other will be homonyms. The use of hieroglyphic writing would naturally create such a literary style and it is interesting to note the extent to which it is preserved in certain parts of the present text.

²⁸ Zuiva is mentioned in the Chronicle of the Book of Chilam Balam of Mani as the country to the west from which the Tutul Xius came to Yucatan (Brinton 1882, p. 95). Seler locates it in Tabasco, Xicalanco, or Coatzacoalco (Seler 1902-1908, vol. III, p. 575). Holtun Zuiva means the Cave Zuiva. In this text it appears to symbolize the Nahuatl origin of the ruling powers at the time.

²⁹ The stone platform beside the Sacrificial Cenote at Chichen Itza, from which the victims were cast into the well, is on the south side.

He was not ruler. His title was only Ah Mex Cuc. Then the man who was cast [into the well] for Ah Mex Cuc was declared ruler. The eagle was his throne. Then he was sought on the hill. Then began the taking of the prophecy (or command) of this ruler. After that it was declared. Then began the setting up of the house on high for the ruler. Then began the construction of the stairway. Then he was set in the house on high in 13 Ahau, the sixth reign. Then began the fulfillment of the reign, of the setting up of Ah Mex Cuc near Baca. Then he was established. Then began his being respected as a lord.³⁰ Then they began to obey him. Then he was served there at Chichen. Chichen Ytzam was its name because the Itzas were there. Then he took away the stones of the district, the stones of the planted fields, the landmarks of the Itzas. They were taken away [and thrown] into the water. Then began the introduction of misery into Chichen Itza. Then our god departed toward the east with Ah Kin Coba. Katun 8 Ahau came. 8 Ahau was the name of the katun when the reign came to pass. Then the change of the katun was declared and the change of the ruler was declared."

TEXT

(*Chumayel* p. 3.)

"Ah Itz: tzim thul chac: u mektanob; yhcansihoo: uayom chich: chich yah kinob: yhcansihoo; canul: yx pop ti balam: u catulah kin chable: u yahauob; cabal xiu: yah kinob: uxmal chac u mektanob: lay yah kin cuch: ca ulsabi: hapaí can = tu chem chan: lay huli: ca uchi kikil pak: te uxmale: tii, ca colabi. u cangel. chac xib chace: sac xib chac: colabi u cangel: u cangel ix. ek yuan chac: colabi.xan: yx sacbelix: u kaba u chichob: chac ek yuuan chac: u yumob: hun yuuan chac: u thupilob: uooh: puc u kaba = lay tz'ibtabi: uooh tu tan u kab: ca tz'ibtabi uooh. yalan u cal: ca tz'ibtabi: tu tan yoc: ca tz'ibtabi: ychil u ppuc u kab ti ah uooh pucil: ma kui: chaccob: = g:halili hahal ku ca yumil ti Diose: u kulob tu yitz'atil: mayapan: ah kin coba:

³⁰ I have translated *yum* as lord, *haluch uinic* as governor, and *ahau* as ruler, although the nature of the authority exercised by each is most uncertain.

(p. 4)

ah kinte ych: paa:e. tzulim chan:ti chikin: Nauat. yah c[anu]l:
 u uol pa ti nohole: Couoh: yah canul: u uol pa til lakin: ah ek:
 u lak: he yahauobe. ah tapai nok cauich: u kaba u halach
 uinicob: hunnac ceel: u pulbeen: ah mex cuci: ca u katah huntulis
 Nichte: ca u katah: sac pop: ca u katah: cappel u tan nok: ca u
 katah: yax ulum: ca u katah: ule: ca u katah: sac homaob: ti
 likulob ca kuchob: ppoole: ti ppolhob: yala ah ytzai: ti tun u naa-
 intahob yx ppoli: ca kuchob Ake: ti sihob: tix Akei: Ake u kaba
 uaye: cu thanob: catun kuchob Alaa: alaa: u kaba uaye: cu
 thanob ca talob: kanholaa. ca talob: tixchel: ti chelhi: u thanobi:
 ti chelhi: u canobi: catun kuchob: Ninum: ti Numhi: u thano-
 bi: ti numhi: u canobi: ah ytzaobi = catun kuchob: chikin tz'onot:
 ti chikintanhi u uichob: chikin tz'onot u kaba uaye: cu thanob:
 catun kuchob: tzuc:oop: ti u tzucah ubaobi: yalan: opi: tzucop:
 u kaba uaye: cu thanob: catun kuchob cahcab: ti u huytah cab.
 ytzai: ca uki tumenel xkoh takin: ca huytabi:ti cab: ca yukah:
 cabilneba: u kaba: ca kuchob

(p. 5)

kikil: ti u canahob: kiknaki: kikil u kaba uaye: cu thanob: ca
 kuchob: panabhaa: ti u panahob hai: ca talob: cucuchil: haa:
 u cuchob tu tamil haai: ca kuchob: yalsihon: yalsihon u kaba
 uaye: cahlic cah = ca kuchob: xppitah: cah xan: catun kuchob:
 kancab: tz'onot: ti likulob: ca kuchob: tz'ula caix tal ob: pibhaltz'-
 onot: catun kuchob: tah: aac:: u kaba: ca tal ob: t Cooh: u kaba:
 ti u manahob: than coohi: ti u manahob: cani: ticoh u kaba
 uaye: ca kuchob: tikal: ti u kalah: ubaobi: tikal u kaba uaye: ca
 talob: timax: ti u maaxtah uba katunobi: ca kuchob buctzotz:
 ti u bucinahob u tzotzel u pollobi: buctzotz u kaba uaye cu
 thanob = ca kuchob: tz'itz'ontun: ti hoppob: chuc lum tz'itz'i:
 tz'iholtun u kaba uaye: ca kuchob: yobain: ti u uayintahob ayini:
 tumen u mamobi: ah yamasi: g: yahaulil tu chi kaknab: ca
 kuchob: sinanche: ti u uayintahob cicin sinanche u kaba uaye:
 ca kuchob ti cahchac: ca cuchob: tz'euc: pisilba: u cahob u lakob
 ca kuchob: u mamob: u lak: ti multzemlah yolobi tz'emul u kaba
 uaye: ca kuchob: kini: yicnal xkil ytzam pech: xtz'euc: u lakob ca

(p. 6)

kuchob icnal.xkil. ytzam pech: yah [a]ukiniob: catun kuchob:
 Baca: ti bacchahi: haa tiobi: Baca: uaye: cu thanob: catunkuchob:
 Sabacnail: yicnal u mamob: u chun uinicil ah Nae: lay chelnae:
 u mamob: catun kuchob: te Benaee: tikahi: u naa tiobi: ca talob:
 yxil: catun binob: chulul: ca kuchob chichicaan: catun binob
 holtun chable: ca talob. ytzamna: ca talob. chubulna: ca kuchob:
 caucel: ti ceelchahobi caucel: uaye cuthanob: catunkuchob: ucu:
 ti yalahob: ya u cu: ca binob: hunuc ma: ca kuchobkinchil:
 cabinob: kana: ca kuchob: tixpetoncah: ca kuchob sahab balam:
 ca kuchob tahcumchakan: ca kuchob: tixbalche: ca kuchob:
 uxmäl: ti tun likulob ca kuchob: tixyubak: ca kuchob Munaa:
 ti munhi: u thanob: ti munhi u canobi: ca binob oxlochhok: ca
 binob chacakal. ca binob. xoceneh: ceh u uayob ca kuchobi:
 ca binob ppustunich. ca binob pucnalchac: ca binob ppencuyut:
 ca binob: ppaxueuet: ca kuchob tixaya: ca kuchob: tistis: u
 kaba: ca kuchob tu chican: ca kuchob tixmeuac

(p. 7)

ca kuchob hunacthi: cakuch . . . azal: ca kuchob: tamusbulna:
 ca kuchob: tixcan: ca kuchob: lop: ca kuchob: cheemiuan: ca
 kuchob: oxcahuanka: ca binob: sabacelcaan: ca kuchob: cetelac:
 u kaba cah: macalob: y u kaba cheenob: ca utzac yoheltaual tux
 manob: tan u ximbal ticob: yilaob: ua utz: lay peten: ua u nahma
 cahtalob: uay lae: tzol peten u kaba tu thanob: ca yumil ti
 Ds lay tzol peten. lay sihes yokolcab tulacal: layx tzol xan: heob
 lae kabansah peten. u cahob: kabansah cheen u cahob: kabansah
 cacab. u cahob kabansah luum-u cahob; tumen mamac kuchuc.
 uaye: uay i ucalpeten ca kuchon uay lae:

"Subinche: kaua: cumcanul: tiemtun ti: emob ti tuni: siçal:
 sacii: ti tz'ooc: ti tz'ooc u than katuni: ti mocon: popola: ti hay
 u pop katuni:—tipixoy: uayumhaa: sabacan: ti num: ti numchi
 thantabobi: ti macal: popola: ti u tzolahob u pop katuni: tix-
 macculum: ti u macahob thani: tz'ithaasbonkauil: tixmex: ko-
 chilla: tix xocen: chunpak: pibahul: tun kaas: haaltunhaa: kuxbila:
 tz'itz'ilche: ticool: sitilpech: chalamte: ti halhi yolobi: ytzamthulil:
 ti pakab ti paktehoi:

(p. 8)

ti ya . . . ansahcab: tz'itz'omtun: yetun u mamob: tichechoctz'-
iitz': tz'itz'holtun: popola: tu nohol sinanche: ca tal mucu: sac
nichte cheen: sotz'il: uay tumultumtahob katune. multumut u
kaba: uay mutupule: muxipip: ake: hoctun: ti cumlahob tu chun
tuni: xocchelbohe: sahcabhaa: tzanlahcat: human: ti humni than
yokolobi: ti humni u pectzilobi: chalamte: pacaxua: u kaba uaye:
cu thanob: tekit ti kit yala ytzaobi: yokolcheen ppuppulni huh:
huh u uayob cahokobi: tz'otz'ile: tiab: bituncheen: uchci yocolob
tipikal: ukaba cheen: uchci u tippilob: ca binob poc huh: ukaba-
cheen: uchci u pocicob huh: ca binob: Manii: ti mankahi thantiobi:
ca kuchob titz'aan ox kin tz'amannobi: ca bin ticul: sacalumcheen:
tixtohilcheen: ti tohni: yolobi: cabinob Balam kin: u petennil ah
kinob: cheenchomac: sac nictel tz'onot: tiyaxcab: uman: oxcum:
sanhil: yhcansihoo: ti-noh-naa-noh-pat: poychena: chulul: ca
kuchob tu titzluum cumkal: ti cumlah u titz peteni: siepach:
yaxkukul:

(p. 9)

tixkokob: cuca: . . . : xan: ekolekol: u kaba ch . . . : tixueue:
tix ueue u kaba cheen uaye: u humtal tal hun hatzi: tix kanimacal:
ti xaan: yumxul: uchci u yumtic u haan: holtun ake: acanqueh:
ticooh: ti chahil. ti chac mayapan: ych paa: yokol haa: ca binob:
Nabula: tixmucuy: tixkanhube: tz'oyila: ca kuchob tisip: ti sip u
thanobi: ti sip u canobi: ca hopi : u hetz' luumob. yahauobi: ti
yanah yah kin paloncabi: heklay yah kinobe mutupul u kaba:
he ah kin paloncabe: ah may: he ah kin mutupule: ah canul:
uayom chich ix xan nunili xan: yucatun ah chable: ah yhcansihoo:
holtun Balam: u mehen: lay u chaah yx yaxum chakane: ti tun
kuchi: u lak ahauobi: laobi ahau u nup u thanobe: ti yahaulilob
ti buluc ahau tun: u kaba cuchi: ca u hetz'ah cabobi: caix ti hetz'-
luumnahobi: caix cahlahobi: ychcaansihoo: ca emob ah holtun
Ake: ca emob ah sabacnailob: catun kuchob yetun Ahaulilob:
he ah sabacnaile: u chun uinicil: ah na: catun u molah ubaob te
ychcansihoo: ti yan yx pop ti balam. tilic yahaulili: holtun balam:

(p. 10)

. . . tili yahaulil . . . tz'oy lay u chun uinicil. copoe . . . xiu
ix tloual xan: chacte ahau chacte u lumil u chuc yahaulilob:

teppanquis: yah kinob: lay ych tabi lae: lay ah ppiste: ppis u lumilobe: hetun: lubte u lumil u luubobe: uuc lub cab: ah may hetun: accunte: u xukil: u luumob: ah accunte: u xukil ah mis Miste u luumob lay miscit ahaue: hetun hetz'ci cab tiobe: lay hoyahel cabe: hetunte yahal cab tiobe: tumte ahau: tumte yahalcab: tiobe: ca hoppi yocol patan tiobe: tu chichen: ti kuch uchci. u kuchul u patan: cantul uinicobe: buluc ahau. u kaba u katunil: cuchi: ti baaxlahi patante. cetelace: u pakte: uchi yanile: catun emi u patan holtun suhuyva te: cetel ace: ti cethi u thanobi oxlahun ahau u katunil cuchi: ti u kamahob patan halach uinicobi: cahopi u tepallobi: ca hoppi ti yahaulilobi: ca hoppi u tanlabalob: ca hoppi u kuchul u pululteob: ca hoppi u pulicob ych cheen: ca uyabac u thanob tumenel yahaulili: ma hul u thanob lay cauich hun hunah ceele: lay cauich u kaba uinicile: ti cuthi cal tu hol cheen

(p. 11)

cheen: ti nohol catun bini chabil catun hoki yalab u than: ca hopp u chabal u than: ca tz'uni u than: ca hoppi yalabal: ahauil: ca culhij: ta cuchil ahauuob: tumenob. ca hoppi yalabal halach uinicil: ma ahau cuchij = chen u hel ah mex cuc: ca ix alabi ahau u pulben: ah mex cuc = coot bin u Nac cabin caxtaui tu uitzil: ca bin: tz'uni: u chabal u than lay ahau: la: citun yalabal: catun hoppi: u nacsabal: canalnaa: ti ti ahaulil: ca hoppi: u pakal: yebal: catun culhi ti canalna: ychil oxlahun: Ahau uactepal. ca tz'uni: u kuchul u yabil u than u kin: u. ua ah mex cuc: u kaba ca u pulal Natz'an baca u kin ah mex cuuc ci: ca yetz'cuntabi: ca hoppi u yumintauali: ca hoppi u tzicile: tu kaba ah mex cuuc: catun tzici catun tanlabi. te tu chicheene: chicheen ytzam. u kaba = tumen ti bin ytza ca u lukah u tunil cabi: u tunil uiil cuch ytzam: luk cabin ychil haa: catun hoppi yocol numya. te chichen ytzae: catun bini te likine: ca ku yicnal ah kin cob[a] talel u cah uaxac Ahau katun cuchi uaxac ahau u kaba katun: uchci u tepal catun hoki u hel katun catun hoki u hel yahauob: . . .

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THE FIRST SEASON'S WORK OF THE AMERICAN SCHOOL IN FRANCE FOR PREHISTORIC STUDIES

By GEORGE GRANT MacCURDY

THE first term of the American School in France for Prehistoric Studies opened at La Quina in Charente on July 2, 1921, and closed at Gargas in Hautes-Pyrénées on September 27th. During this period a small group of American students took advantage of an opportunity to obtain a first-hand acquaintance with palaeolithic sites and with methods of prehistoric research. Nine weeks were spent at La Quina as a base station.

The principal station and the laboratory developed by Dr. Henri-Martin are now the property of the French Government. The students had free use of the laboratory. For eight weeks they dug in a station adjoining that of the Government, known as La Quina M and set aside for their special exploration (fig. 1, A-C; fig. 4, A). The specimens found included chipped flint implements of several varieties, oxide of manganese, showing scraped facets, utilized bone fragments, and many broken bones of the animals on which the Neandertal or Mousterian race fed. The principal animal remains found were, in the order of their abundance, *Bos primigenius*, bison, horse (two species), reindeer, stag, hyena, lion, fox, wolf, wild boar, and some *Capridae*. A part of each day was devoted to cleaning and studying the specimens found and identifying the animal species represented.

During several afternoons the School explored a small cave in the neighborhood and obtained specimens representing a culture horizon different from that of La Quina, namely the Magdalenian epoch. For two days they dug in another near-by cave known as the *Trou du Cluzeau*, which had been inhabited by Aurignacian man. There they found numerous fossil animal bones, many of which bore marks of the teeth of the hyena. The species determined include *Bos primigenius*, two species of

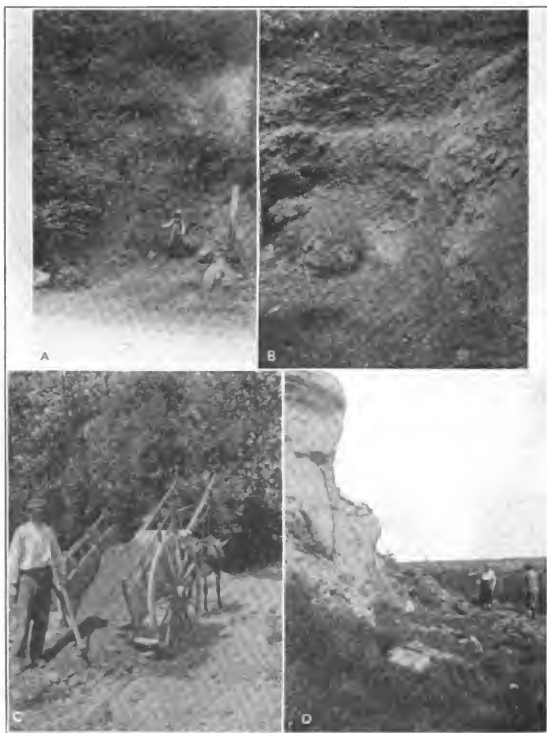


FIG. 1.—Explorations of the American School in France for Prehistoric Studies: A. La Quina M from the highway on July 4, 1921. The deposits to be removed are on the left. Photo by A. M. Pond. B. La Quina M on Sept. 9, 1921, taken at right angles to the preceding. Photo by MacCurdy. C. One of the 240 cartloads removed from the diggings and hauled 1 kilometer. Photo by MacCurdy. D. The station of Hauteroche near Châteauneuf (Charente). Photo by MacCurdy.

horse, lion, and hyena. Among the artifacts found were Aurignacian flint blades, a fine bone point, and a hunter's tally of bone (figs. 2 and 3).

The School took advantage of the many invitations of Dr. Martin to visit the Government Laboratory founded by him, and benefit by a comparative study of the collections therein. (fig. 4, B and C). They also had the stimulus occasioned by



FIG. 2.—A hunter's bone tally found by the School at the Trou-du-Cluzeau (Charente). Aurignacian epoch. Natural size.

visits from persons interested in their work, notably Dr. Henri-Martin, Dr. Charles Peabody, Chairman of the Board, and Professor R. W. Wood of Johns Hopkins University, accompanied by his family.

From La Quina two excursions were made in the Dordogne, one to Teyjat for a view of the mural engravings on the walls of



FIG. 3.—Bone point found by the School at the Trou-du-Cluzeau (Charente). Aurignacian epoch. Natural size.

the cavern of La Mairie and one to Les Eyzies as a center for a week's stay. Les Eyzies has many attractions. The country is picturesque; much of prehistoric interest is set within narrow geographic limits but the chief point of interest is that nearly every cavern and rock shelter has become a gallery or museum in perpetuity. The galleries are the caverns and rock shelters with stationary or mural art such as Font-de-Gaume, Combarelles, La Mouthe, Bernifal, Cap-Blanc, La Grêze, the Abri du Poisson, and La Mairie (fig. 5, B). The museums are the stations in which specially prepared sections of the relic-bearing deposits are protected from ruthless hands as well as from the elements, and will

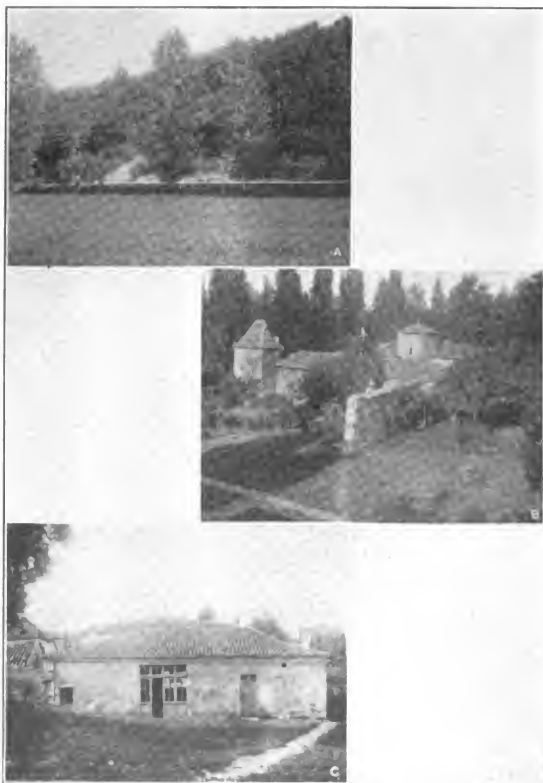


FIG. 4.—Explorations of the American School in France for Prehistoric Studies: A. The classic station, known as La Quina A, B, and C. La Quina M is immediately to the left. Photo by MacCurdy. B. The summer home of Dr. Henri-Martin at Peyrat near La Quina. Photo by MacCurdy. C. The laboratory founded by Dr. Henri-Martin and recently given by him to the French Government. Photo by MacCurdy.

ever remain to tell the story of how man lived and how long he lived before the dawn of history.

In two of the rock shelters, one finds not only an exposed section of the palaeolithic deposits exactly as they were originally laid down, but also a museum in the usual sense of the term—a building with cases full of specimens. These are the Abri du Château in the village of Les Eyzies (fig. 5, A), and Laugerie-Basse and Marseilles on the opposite bank of the Vézère River. Two of the most striking and instructive sections are to be seen at La Ferrassie and Le Moustier—the lower shelter where Hauser found a skeleton of the Neandertal race.

After returning to La Quina for a short campaign and shipping the specimens gathered to museums in the United States, the activities of the School were confined largely to visiting public and private collections as well as worth-while stations where work is either now in progress, or where sections or mural art still remain. While at Les Eyzies for example, we were present when L. Didon found an animal figure drawn in black on the face of a large fallen stone at the rock shelter of Labatut at Sergeac. We also crossed over into Lot and visited two palaeolithic caves with mural art recently discovered by the Abbé Lemozi, Marçenac and Ste.-Eulalie.

Before leaving Charente, the Director was elected to honorary membership in the Société Archéologique et Historique de la Charente. From Angoulême, the School visited the rock shelter of Hauteroche near Châteauneuf (fig. 1, D) and dug for an afternoon, finding a number of specimens. The following day they explored the sand and gravel pits of Carmagnac at Les Planes, where splendid sections of loess, sand, and gravel are exposed and where Acheulian and Aurignacian flint implements have been found (fig. 5, C). Several typical specimens were given to the Director by Monsieur Carmagnac, owner of the pits.

From Angoulême en route for the French Pyrénées, the School made several stops; at La Rochefoucauld to see the Fermond collection now in the possession of Dr. l'Homme, and a collection gathered during the present summer at a cave near Placard by Professor P. A. Ragout. With Professor Ragout, we



FIG. 5.—Explorations of the American School in France for Prehistoric Studies: A. The Abri du Château, Les Eyzies. The restored portion of the Chateau is now a museum. In the foreground is a portion of the village. Photo by MacCurdy. B. Entrance to the cave of La Mairie at Teyjat (Dordogne). Photo by MacCurdy. C. Sand pit of Carmagnac at Les Planes, near Angoulême. The relic-bearing levels are indicated by the two men with tools. Photo by MacCurdy.

later visited the cave where he has found a culture sequence representing the Aurignacian and Magdalenian epochs as well as the neolithic period and the bronze age. His finds also include an example of palaeolithic art—an engraving of one of the *Cervidae* on bone. We dug for awhile at the great cave of Placard and at the rock shelter of Bois-du-Roc in the immediate neighborhood.

Our next stop was at the Brive in Corrèze, where the Abbé Bardon was our guide. He showed us the local collections and with him we visited a series of palaeolithic stations a short distance from Brive: Grotte-des-Morts, Raysse, Coumba-del-Bouitou, Lacoste, Préaubert, Combe-à-Nègre, the Grotte-de-Champs, and Bos-del-Ser (Bois-du-Soir). The Abbé Bardon is at present digging at Bos-del-Ser and we were permitted to dig with him for half a day, finding a series of Aurignacian flint implements. At Raysse, the Grotte-des-Morts, and the Grotte-de-Champs, we also found a few valuable specimens.

The trip from Brive to Toulouse was broken at Rocamadour and at Cahors. At Rocamadour, we met by appointment the Abbé Jean Bouyssonie and with him visited several local sites and the private collection of Armand Viré, Délégué du Ministère de l'Instruction Publique et des Beaux-Arts pour les Monuments Préhistoriques et Historiques in the department of Lot. For a half day we dug with Viré at Crozo-de-Gentillo, which exhibits a culture sequence comprising the Aurignacian and Magdalenian epochs, as well as the Iron Age. Later, under the guidance of a local prehistoric archaeologist, Monsieur André Niederlander, we explored a neolithic dolmen and a tumulus.

The museum at Cahors proved to be well worth a visit because of the several palaeolithic collections it contains, notably those from Les Cambous, Cavart, Roussignol, and Coual.

Professor Emile Cartailhac,¹ dean of palaeolithic cave explorers, has made of Toulouse an important center of prehistoric research. The student in this field must needs see him and the collections he has formed at the Musée de St.-Remo and at the Natural History Museum. Moreover, Toulouse is a convenient point from which to make a tour of the palaeolithic stations in Haute-

¹ Since deceased. A memorial notice appears on page 113 of this issue.

Garonne, Ariège, and Hautes-Pyrénées. From Toulouse we went to Ussat and Niaux, both near Tarascon, where one finds the local forester whose presence is essential on the occasion of a visit to the cavern of Niaux. We also had the good fortune to meet Dr. Cuguillère, who showed us the Grotte-des-Églises at Ussat. Here Dr. Cuguillère recently discovered palaeolithic mural drawings, including the figure of a wild goat and a tectiform sign with a human figure lying beneath it, all three in red; also a bison in black. In one section of the cave, neolithic sepultures have been found. Only two weeks before our arrival Dr. Cuguillère discovered in the neighboring Grotte-de-l'Hermitte a mural drawing in yellow ochre of a human form resembling the statue menhir figures, and hence presumably of neolithic age.

Niaux is a great and attractive cavern replete with human interest because of its having been a palaeolithic shrine. Numerous drawings in oxide of manganese, especially of the bison and horse, and signs both in red and black testify to this fact. There is also the realistic figure of a fish sketched in the fine clay of the cavern floor. At two points we stopped to pick up some neolithic potsherds that had been dug from the cavern floor. Across the valley of the Vic-de-Sos from Niaux is the Grotte-de-la-Vache which was inhabited during the Magdalenian and Azilian epochs. Engravings on bone have been found there, also Magdalenian harpoons of reindeer horn and Azilian harpoons of staghorn. The Garrigou collection from La Vache may be seen in the museum at Foix, which well repays a visit.

Between Foix and St. Girons (but not on the main road) lie two important caves, that of Portel with mural art and that of Mas-d'Azil. The principal treasures of Mas-d'Azil are now in museums, principally at St.-Germain-en-Laye. There are two stations: the one on the left bank, the type station for the Azilian epoch, is now but a memory since nothing remains but the site; the one on the right bank retains traces of mural drawings and engravings, including figures of the bison, reindeer, and horse. In the station on the right bank, many portable objects of art were found. Over the two stations and the Arise that flows between is a great natural arch of limestone 51 meters wide by 48 meters

high, beautiful to look upon, a roof that served to shelter man as early as the Magdalenian epoch, during the neolithic, bronze and iron ages, and even down to the period of the religious wars, and which is not yet in need of repair.

For sheer beauty of natural scenery as well as for the human interest attaching thereto, the two adjacent caves of Tuc d'Audoubert and the Trois-Frères are pre-eminent. They are in the commune of Montesquieu-Avantes (Ariège) on the property now belonging to Count Bégouen, whose summer home, "Les Espas," is only about a kilometer from the caverns. These we conveniently visited from St. Giron, eight kilometers distant, after Count Bégouen had shown us the collections—artifacts of flint, bone, and reindeer horn, engravings and fossil animal bones—which he and his three sons, Max, Jacques, and Louis (the "Trois-Frères") had dug from the floors of the caverns.

The entrance to Tuc d'Audoubert which was discovered in July, 1912, is by means of a boat on a small subterranean stream (the Volp). In no other cavern inhabited by palaeolithic man are the stalactites and stalagmites so many and so beautiful. Of the series of galleries two are appropriately named: Salle Cartailhac and Salle des Noces. Seductive as these are, the smaller and plainer gallery of the bison (discovered in October, 1912) is even more attractive. The two bison figures modeled in clay on the cavern floor and almost completely in the round are in turn stupefying, bewildering, and admirable. This group represents perhaps more nearly than any other one thing the sum total of the cave man's mode of thought and life. Near this large group Count Bégouen found a small clay figure of a bison in the round. Being wholly detached from its matrix, this figure was removed and is now in the National Museum at Saint-Germain. Before leaving Tuc d'Audoubert, one will notice numerous palaeolithic footprints in the clay, also several superb engravings of various animal forms.

The cavern of Trois-Frères was discovered in July, 1914, through a pit opening therein from the summit of the hill. This pit had trapped many an unwary beast in Quaternary times, as witness the several almost complete skeletons of bison, reindeer,

etc., in the Bégouen collection at Les Espas. No wonder it had escaped for so long the keen eye of the modern explorer. Like Tuc, Trois-Frères is a series of galleries connected by corridors. Quaternary man had a more convenient way of entering these than by the overhead pit, probably by way of the Grotte d'Enlène, which Count Bégouen later found to be connected with the Trois Frères series, and which now serves as the entrance to the latter. If Tuc has its bisons in clay, Trois-Frères has its sorcerer, the most remarkable one of some hundreds of engravings which ornament the walls of the terminal gallery of the lower level.

The figure of the sorcerer, about 75 cm. in length, is situated high on the wall at one end and dominates the entire gallery. It is completely engraved, while the outlines of certain parts of the figure are further emphasized by the application of black paint. The figure is that of a man, masked and sporting a horse's tail. The body is in profile with the head turned full-face toward the observer. The sorcerer is in motion though little more than half erect. The legs and feet are typically human and from between the half-flexed legs the sexual organs are brought intentionally to view. The arms are passive and abbreviated. The mask is seen in the long hairy upright ears, above and between which rises a pair of stag antlers.

The bisons of Tuc, the sorcerer of Trois-Frères;

The one is a priest, the other a prayer.

Tuc and Trois-Frères were occupied by both Aurignacian and Magdalenian man and it is probable that the two were united in Quaternary times by a corridor. Portable objects of art were found both in Tuc and in Trois-Frères; and a beautifully carved dart-thrower was found by Count Bégouen years ago in the cave *c.f.* Enlène, which is now used as an entrance to Trois-Frères. One should not visit these caverns, unless he is prepared to give at least a day to each.

The last two caverns visited by the School were Marsoulas in Ariège near Salies-du-Salat and Gargas in the commune of Montrejeau. Both are protected by iron gateways as the walls were decorated by palaeolithic artists. The principal figure at Marsoulas is that of a bison painted in red. At Gargas there

are many mural figures of the human hand—negative imprints in a red or black field. Many of these show the loss of one or several fingers. There are also mural figures of the bison, mammoth, and horse. The contents of the floor deposits prove that Gargas was inhabited by cave man for a long period of time, beginning with the Mousterian and ending with the upper Aurignacian epoch.

This sketch will serve to indicate the major activities of the School during the first term of the first year of its existence. They were undertaken in the spirit of the pioneer, who has no precedents to break and none to observe. And if, perchance, some precedents have been established, the Director should be the first to acknowledge that he already is aware of many opportunities for improvement in the program of the second year. But suggestions along this line can best be embodied in a series of recommendations to his successor, rather than in a report of this kind. The second term's work in Paris and the third term in the field next spring are being planned to enable the students to explore the prehistoric fields not already covered by them.

PARIS, FRANCE.

BOOK REVIEWS

METHODS AND PRINCIPLES

Man and his Past. O. G. S. CRAWFORD. Oxford University Press: London, 1921. 227 pp.

The large number of books on anthropological subjects now appearing in England is marked by one well above the average of these publications. While based almost entirely on a study of Roman roads in England, it is an excellent text book for archaeological students in any country. The author starts with the idea of the earliest flint implements as "extra-corporeal limbs" and traces the factor of tools in the development of man.

The content of archaeology is treated fully and the alliance between anthropology and history is brought out in a way second only to that in James Harvey Robinson's *New History*. The common sense approach to field methods, the isolation of periods from the study of types, the intensive examination of regions and cultures are all worthy of mention. The time aspect of archaeology is contrasted with the space aspect of geography. There is an important chapter on "Value" in archaeology. The author writes entertainingly on the suggestion of General Pitt Rivers that the word "importance" be excluded from scientific dictionaries.

Another chapter on "Distributions" as showing areas of habitation in contrast to trade specimens, and the interpretation of chance finds are subjects useful in any field. The illustration of his methods by the work on Roman roads is clear and concise. This book, although perhaps not intended as a work on field methods, may well take its place along with other books on this subject of a far more technical nature.

A. M. TOZZER

AMERICA

Mythology of All Races. Vol. XI: *Latin-American Mythology.* HARTLEY BURR ALEXANDER, Ph. D., Professor of Philosophy, University of Nebraska. Marshall Jones Co.: Boston, 1920. Pp. xvi, 424, 2 figs., 42 pls.

As in the companion volume of this series on North America, the author has amply fulfilled his purpose of presenting the mythical

material of the area in question. There is no attempt at interpretation or discussion of the various aspects of the complicated and disconnected mythologies of Latin-America. He has seemingly been through an immense mass of literature and has not neglected the early historical authorities so numerous in this field. It is they, in fact, who give him the greater amount of his material. He has only partially availed himself of the material contained in the Mexican and Maya codices. Seler's interpretation of some of the Mexican manuscripts has been used to some extent.

This book covers practically the same field as one by Lewis Spence, *The Myths of Mexico and Peru*, published in 1913. This present volume treats the subject with much more thoroughness and with far greater intelligence in the use of the authorities. There is a great deal of ethnological and archaeological material in this volume; in some chapters it bulks larger than the data more purely mythical in character. This is to be excused, especially in some cases in South and Central America, where there is little known concerning the mythology of many sections of the country.

As in all volumes of this series, the numerous illustrations are beautifully made, many of them in color, but in only a few cases is there any reference to them in the text. It is regrettable that, from the point of view of the student, these illustrations have little additional value and they have undoubtedly added greatly to the cost of the volumes in the series.

A. M. TOZZER

AFRICA

The Akamba of British East Africa; An Ethnological Monograph.

GERHARD LINDBLOM. 2d edition, enlarged. Upsala: Appelberg, 1920. 8°; XII, 607 pp. (Archives d'Etudes orientales, vol. 17.)

Die Kpelle: ein Negerstamm in Liberia dargestellt auf der Grundlage von Eingeborenen-Berichten. Mit zwei Nachträgen: Texte in der Golasprache und Kpelle-Beiträge von H. ROHDE. DIEDRICH WESTERMANN. Göttingen: Vandenhoeck u. Ruprecht, 1921. 8°; XVI, 552 pp. (Quellen der Religionsgeschichte, no. 9.)

Two important monographs relating to African peoples have recently appeared—one Lindblom's *Akamba*, dealing with a Bantu population, the other, Westermann's *Kpelle*, with true Negroes. They

are alike in that their authors are primarily linguists, but both books are purely ethnographic. Both volumes are numbers in extended series, not all the volumes in which will directly interest the anthropologist.

Lindblom's book is in English. Its author is a Swede and much of the monograph was originally printed as a university dissertation. It has now been expanded and many new chapters have been added. As it now appears it is a volume of more than six hundred pages. While the author has done remarkably well in expressing himself in a foreign tongue, there are naturally some errors in grammar and some peculiarities of expression, which do not, however, give rise to misunderstanding. There is a certain heaviness of style that makes the book difficult to read, but the matter is important and the conscientiousness of the author is everywhere evident. Apparently it is his first ethnological work, giving the impression that he has worked from a questionnaire; he painfully emphasizes the non-presence of things as carefully as their presence (not a bad thing in itself, though it becomes ostentatious when suggesting absences which would be certainly known from the positive data); he goes quite out of his way also to make comparisons with other peoples and other cultures, even when the comparison will lead nowhere.

There is no lack of printed matter regarding the Akamba, some of which is excellent; Lindblom, however, gives us much fuller material than has ever before been offered. It is the result of more than a year of concentrated study. In his writing of native words the author uses a special alphabet. He assumes the reader's acquaintance with it and nowhere gives an explanation of it, though it abounds in strange and repellent characters, difficult to the eyes and conveying sounds as to the nature of which the uninstructed reader may only guess. It is possible that his scientific alphabet is used throughout the *Archives* of which his work is a number, or that he explains it in his linguistic works; it may even be that his alphabet may have some currency among ethnological writers—but even so, he should not assume that his readers all know what has been done by specialists in phonetics, and should give a page of explanation.

The Akamba are a Bantu people, living in the northeast corner of the great Bantu area. They are one of the largest tribes in British East Africa. They occupy a region which measures about 225 kilometers from north to south, about 130 kilometers from east to

west. Some Akamba are also scattered here and there in British East Africa. These are usually descendants of groups that were driven to find new homes in times of famine. Such Akamba preserve their language and customs fairly pure, are loath to marry into the tribes among whom they live, and maintain communication with their kinsmen in the old home; they are, however, looked down upon by these. The population of the Akamba in Ukamba proper is officially taken at 230,000. Their language, Kikamba, is perhaps next to Kiswahili, "the lingua franca of East Africa" in importance. The land they occupy is one of hillocks and plains—the latter being overgrown with thorny brush. Water is scant, there being no lakes and most of the streams going dry soon after the rainy season. The people are agricultural, but also raise cattle and goats, which form their chief wealth. Their neighbors, the Masai, surpass them in cattle-raising and have a better country for herds.

From a treatise that covers the entire range of tribal activities, it is not easy to make profitable quotation. We can mention but a few matters which Lindblom gives in detail. Totemism is irregularly and uncertainly developed in Africa, both among Bantu and true Negroes. Lindblom finds it quite clearly among the Akamba. He lists nineteen totems, seventeen of which are derived from animals, one from a plant, one from an inanimate substance. Among them are lion, hyena, bushbok, long-tailed monkey, bat, parrot, wild fig tree, iron-sand. Curiously, the elephant, rhinoceros, giraffe, and crocodile seem not to be totem animals. That the totems he lists are really such is shown by Lindblom's characterization of totemism. He says: "a totem is some animal, or less often a plant or inanimate object, which is thought to stand in a certain relation to a certain group of individuals. 1) the totem applies to a certain group of individuals (a clan) between whom marriage is prohibited; 2) these individuals believe that they are in some way akin to the totem, often that they are descended from it; 3) there exists a mystic bond between the individual and his totem animal." All this is commonplace, but the word is constantly used with so little care by writers on African peoples, that it is necessary to ask in each case what the writer means when he says "totemism."

Cicatrization, either as a tribal mark, sign of initiation, or decoration, is common among both Bantu and Negroes, and shows up finely; tattooing is less common, but occurs, and tattoo designs are far more evident on the dark skin than would be expected; there is a

third method of producing permanent patterns upon the body that is less common than either. It is *staining*, which I observed among only one of more than a score of Congo peoples. It occurs among the Akamba and of it Lindblom says:

On the face, cheeks, etc., figures representing the sun and moon are most common. They are black, darker than the skin. The skin is scratched with the rough stalks of a plant (galium?); powdered root of the plumbago, dipped in milk or sugar-cane juice is placed on the wound, left there for the night and then removed. The operation is said to be very painful; the surface swells, 'burns like fire and one cannot sleep at night.' (p. 392).

One thing which Lindblom repeatedly mentions is ceremonial coitus. Sex relation taboos are common on the undertaking of important enterprises, and are often mentioned by writers. Required and ceremonial coitus may be equally common but it is rarely stated. Our author calls attention to it often, stating the occasions on which it takes place. In both abstention and required indulgence there is no doubt always some underlying idea of magic. Thus, when cattle are out in pasture, it is injurious to them and may cause their death, if the owner has relations with his wife; so, also, in case there is an infectious disease among the cattle, the medicine man may forbid sexual intercourse to the owner. On the other hand, when newly acquired cattle are brought home the owner has coitus with his wife to insure that the cows calve well. No doubt ceremonial coitus is common and will be found widely distributed if sought.

Oaths are significant among Africans and have often been reported. Rarely, however, have we as full detail as Lindblom gives regarding the swearing over the *Kipiteu*. (To avoid repeating this unspellable term we shall refer to it as K.) Lindblom says:

In trials judges resort to K. and let both parties swear that they are right. The breaking of an oath thus made is followed by death; hence the guilty party either confesses or refuses to swear. At the end of the trial the parties may thus swear to abide by decision, or to honest intentions, or to keep an agreement. There are many forms of K. Common is the tusk of a wart-hog or the horn of an antelope filled with all sorts of things and prepared by a medicine man. Its cost is high—one or more oxen, or the equivalent. The ingredients are foodstuffs as beans or maize; rust, slag and other smith-refuse ("iron excrement"), fat from dead people, and earth collected before the first rain of the year. In swearing over it, it is placed upon three small stones to prevent its touching the ground; acacia twigs are laid about it; the person or persons taking the oath stand upon stones set for the purpose; he, or they, hold a twig of mukuliva. In the oath the swearer

demands to be eaten by the K. if he is false and strikes it with the twig. As being dangerous, the K. is not kept in the village or in the house, nor near cultivated fields, but in the wild, in some hole under stones. When its services are required application is made to the owner, to whom a goat is given. It may not be touched with the naked hands; they must be smeared with fat; it is bound around with bast for carrying, and carried by it; the carrier may not change his hands, but may rest it down on the ground on the side of the carrying hand; warning must be cried to those met, in order that they may get out of harm's way; the carrier is under sex-relations taboo. This powerful oath-fetish is in constant use and is adopted in the English civil courts. (p. 173.)

The Akamba give considerable attention to beekeeping. Keeping of bees is common throughout East Africa but we do not always have definite information concerning it. It is no doubt much the same everywhere. Lindblom says:

Akamba beehives are hollowed out tree-trunks of from a half-meter to one meter in length: the ends are closed with thin pieces of wood fitted inside the rims, and supplied with two entrance holes; on the lower side is the owner's mark. Only certain kinds of wood are used for hives. The hives are set up in trees, not seldom as many as a dozen in a tree; they are either placed in a fork or hung from a branch. The supporting lianas are fastened around the middle of the hive, which is hung inclined; the liana is fastened to a hook and a second hook is attached to the branch. They are often placed high up and far out. Importance of the industry varies locally; at Ikutha one man may own as many as 200 to 300. To tempt bees into a new hive, it is smoked by burning an aromatic wood; certain other woods are burned about it to keep snakes away. African bees are fierce; to render them gentle a lizard is put into the hive and a bit of honeycomb which has been rubbed against a bit of mutton; the bees are now ordered to be peaceful. (The lizard and the sheep are peaceful creatures.) Honey is gathered after dark, when the bees are chilled and sluggish. Some combs are left in the hives to prevent their abandonment. The honey is taken home in triangular goat-skin bags. Honey is extracted three or four times a year and is stored in wooden cylinders with leather lids, which are hung to the roof-props of the hut. Akamba like to eat honey, but it is chiefly prized for beer-making. When an owner of beehives dies, his nearest relatives go out to tell the bees, throwing small stones or clods of earth to attract their attention, "Wake up, you bees! Your owner is certainly now dead, but because of that you must not cease to work and gather honey." (p. 499.)

Origin stories usually contain little that is reliable. Lindblom gives a number, among them those narrating the origin of the Akamba, the origin of the care of cattle, the origin of poultry. While any one of these singly may have no great significance, the comparison of them gives some hints that might lead to interesting results.

We close this review with the story of the origin of the Akamba (given, unlike our preceding quotations, in the words of the author):

A very long time ago a woman gave birth to three boys, who were called Mukavi (Masai), Mukikuyu and Mukamba. The boys grew up, took wives, and each man built his village. And they had children, who had different words. Mukavi got milk and blood, while Mukikuyu and Mukamba got beans, sweet potatoes and other food from the fields. But they also wanted cattle and they went to Mukavi and asked for a cow for each of their children. Mukavi refused to give them any, saying: "You have got other food, which I have not got. I have my cattle and nothing else. If you wish to fight, I don't mind." Mukikuyu and Mukamba said: "Let us take our young men and seize the cattle by force." And they gathered together their children, went to the Masai's village and, after a fight, took a great many cattle, which they drove away. But, in the night, while the warriors were asleep, the Masai came and took away most of the animals. In the morning the Akamba and the Akikuyu came to blows about the remainder and then each went off in enmity to his own district. When an old Akamba nears his end he says to his sons: "A long time ago the ancestor of the Akamba, Akikuyu and Masai was one and the same man. But our relation and friendship died because of cattle. When I die now, take care not to come to blows because of cattle." (p. 354).

The second of these African monographs is Westermann's *Kpelle*. It is a book of the same size as Lindblom's and the author's fundamental object was linguistic study, although his native "texts" and his special linguistic results will appear elsewhere. It is the first serious attempt to present the ethnography of any Liberian people. Sir Harry Johnston summarized what was known of Liberian tribes in his well-known work, *Liberia*; his summary may still be a background or foundation for study. Delafosse, who lived in the country, gave valuable material regarding the relationship and grouping of Liberian tribes. Ellis, a colored man, wrote a good popular work about the Vai (or Vei). There is considerable material about the peoples of Sierra Leone, some of whom overlap into Liberia. But none of these, nor all of them together, gives us as full information as this new book.

Westermann spent but four months in the field collecting his material. But he had behind him years of study upon the languages and life of Negro tribes. His *Wörterbuch d. Ewesprache* was published in 1905; his *Kpese-Sprache in Liberia* (Kpese = Kpelle) appeared in 1910; his studies upon linguistic groups of the western Sudan are favorably known; his *Shilluk People* deals with a population in the eastern half of the true Negro belt. In Liberia he headquartered at

the American Lutheran mission at Mecklenberg, one of the most practical and successful missions in West Africa, where he had the hearty coöperation of the missionaries and the constant use of their native helpers. Among these missionaries was the Rev. H. Rohde, who contributes a supplementary chapter and is frequently mentioned or quoted in the body of the book. Accompanied by missionaries or native helpers, Dr. Westermann visited some of the Kpelle villages. From this work in the villages, labor with helpers at the mission, and a wide and critical reading, he has produced a truly valuable work. It is printed in German and is based upon native texts, which were written or dictated by twelve natives, all of whom he names and characterizes. The actual Kpelle texts are not here reproduced; they will appear in his later linguistic study; translations of them into German are given in full. The author's method is, under each section of the material, to give first an introduction in his own words in which he makes a well-organized and straightforward statement of the facts to be gleaned from the texts, completing it with information from the missionaries and written sources. The texts upon which this statement is based are then presented, with abundant explanatory footnotes. There are, of course, preliminary chapters upon the land, tribal characteristics, and the neighbors of the Kpelle. Then follow chapters upon industries or occupations, family and social organization, language, cosmic and religious ideas, and stories. These are all presented in the way already described—first a careful introductory statement, then the supporting texts. The last chapter is the life history of William Kwei Pedersen, who was the most trusted of his native helpers and the writer of some of the best texts. Two supplementary chapters complete the work—one being Gola-texts (*märchen*), the other Mr. Rohde's contribution of Kpelle material.

The Kpelle live in western Liberia. They came from the northeast and are moving towards the southwest, crowding upon the Gola. Linguistically they belong to the Mandingo or Mande group, which is divided into two divisions, known as the *tan* and the *fu* sections, according to their word for ten. The Kpelle belong to the *fu* section, which is the southern of the two. Culturally, however, they show greater relation to the Kru tribes of the coast who form a well marked and distinctive group. In their secret societies and myths also the Kpelle are like the Kru. Their snake worship and human sacrifice, however, are Mandingo traits. Under the term

Kpelle our author recognizes six sub-tribes, each with its own tribal name. Kpelle villages are rarely large, ranging from 8 to 80 huts. Counting three persons to a hut, Westermann estimates the total population of the Kpelle at 103,500. A characteristic feature of the Kpelle seems to be a certain servility; Kpelle slaves are numerous among the surrounding tribes.

Professor Westermann works out a list of West Liberian tribes that will be useful for reference. He carefully works out the synonymy, bringing together all the names that have been used by earlier authors. We will not enter into synonymic details, for which the reader should refer to the book itself, but the simple list is as follows: 1. Kpelle; 2. Gbande; 3. Gbunde; 4. Loma; 5. Weima; 6. Mende; 7. Vai; 8. De; 9. Bassa; 10. Bele; 11. Kisse. Westermann, like Lindblom, uses a scientific alphabet, for which he gives no key. It is less offensive to the eyes and easier to guess at its pronunciation than is the case with Lindblom's. That the two are markedly unlike shows that neither author is justified in assuming that the reader will know the characters without help.

One of the most important parts of the work is that which deals with the two great secret societies—the men's Poro society and the women's Sande. The information is as full as the carefully guarded secrecy of the societies admits. That both are old, and have remained practically unchanged for many years is shown by the quotation and comparison of the descriptions of many writers. The author here brings together practically everything that has been written on the subject by direct observers.

That our insistence upon a rigid and limited use of the word totemism is not amiss is shown by the wide significance that Westermann gives to the word. He excuses this by the plea that a single native word is applied to all of the four things he includes under it. This may be so, but none of the material he presents seems to be totemism in the strict sense of the word. "Totem" is derived from an American Indian (Algonkian) word. When we use the word, the thing intended should be, at least in some degree, like what the Algonkians meant by it. Totemism, strictly defined, really exists among the Akamba; it may exist among the Kpelle, but Westermann gives no actual illustration of it. He says:

The honored animals fall into four classes; 1. Actual animals, as the embodiment or dwelling-place of ancestors. To these belong the "holy fish" mentioned by Néel, the sacred snakes of the Loma, as well as the flocks

of weaver birds which maintain themselves near the towns. . . . 2. Actual animals whose helpful qualities one would draw to himself—leopards, elephants, etc. Here also are honored plants and natural phenomena. 3. Animals which—according to the ideas of the natives—have become demons; chimpanzee or forest-devil, sea-cow or water-man, great snakes, also apparently mountain-men. . . . 4. The animals already mentioned as set apart for sacred ends—goats, bullocks, etc. They have quite a different character from numbers 1 to 3.

Regarding all these animals our author gives many and interesting details, but should he call them totems?

Westermann devotes much space and gives much attention to the stories, *märchen*. He gives the translations of many Kpelle stories. For comparative purposes he also gives us a cluster of Gola stories and copies the Mende stories already printed by Migeod and others. He thus brings together a mass of material that is fairly uniform and represents one myth area, which can be profitably studied and analyzed. He seeks to isolate the story elements or motives. He finds, as usual of course, that there are really only a few of these and that they recur again and again, variously combined, in one story after another. He works out a list of such myth-motives, which is useful for reference: (a) in testing stories from other tribes of the same group and myth-cycle; and (b) in analysis of myths of other African areas with the purpose of working out similar tables for them. His list follows:

MÄRCHEN MOTIVES OF THE KPELLE, GOLA, AND MENDE

The deeds of magician-children

1. Magician children set out to seek adventure.

Magician-children as rescuers (Rescue Märchen)

2. A magician-child rescues his lost, wandering brother.
3. They rescue their carried-away sister from the power of the wood-devil.
4. He assists his father against the wood-devil.
5. They free their home from the plague of the wood-devil.
6. They rescue their sister and her husband from the power of the wood-devil.
7. Adhesion to the rock.

Magician-children as avengers (Vengeance-märchen)

8. Son of an abused woman fights against his father.
(The preceding numbers contain the chief motive of a story. The next following enter as incidental parts, and secondary motives in the stories.)
9. Magician-children and adventure-seeking-children are born or grow up in the bush—instead of in the town—and under unusual circumstances.

10. Magician-children break their food-dishes after finishing their meal—apparently because it has become magically powerful through contact, and ought not to come into strange hands.

11. One of the pair of adventurers goes up a stream (or to the interior), the other down the stream (or coastward).

12. One (or both) of them sets a fixed point of time for his return (or their meeting again).

13. They thrust their hands through solid bodies.

14. One kills men and animals by pointing or gestures.

15. The helpful old woman.

16. The magician-boy is burned (by his own people).

17. The wood-devil eats human flesh; his wife deceives him with animal flesh.

18. The wood-devil is killed, usually burned.

Animals, trees, and rocks as helpers of men (Help him who helps you)

I. Animals. a) Positive: the helpful beasts

19. The helpful animals give valuable service to their benefactor.

b) Negative: the ungrateful man

20. The man is punished because he does not keep his promise to the animal.

II. Rocks and Trees

21. Rocks and trees.

The magical horn-of-plenty

22. Riches appear (and disappear) in wonderful wise.

23. The child of the good and the child of the bad woman.

24. Misleading by a dead man.

25. Of two companions one tries to cheat the other of his share in a common food supply.

26. Women are ensnared through fine appearance.

27. Animals steal a child (totem histories).

28. The applicant for a maiden must perform some difficult task.

29. A child (or man) acts against the prohibition or advice of parents (of his people, of the king).

Spider Stories

30. The spider seeks food. Constantly some other animal, or one of his own children, is with him, who is either betrayed by the spider or overcomes him. The secured food is enjoyed by him alone, while wife and children hunger. . . .

31. The spider can not be killed. This is a secondary motive under 30.

Etiological Stories

32. These will explain some peculiarity. Only a few märchen have such an attempt at explanation as a chief motive. . . .

33. Parables, i. e., stories which end up with a question such as: "To which of the two does it belong?" "Who is to blame?"

FREDERICK STARR

MISCELLANEOUS

History and Bibliography of Anatomic Illustration in its Relation to Anatomic Science and the Graphic Arts. LUDWIG CHOULANT. Translated from the German and supplemented by MORTIMER FRANK. The University of Chicago Press, 1920. xxvii, 435 pp.

The recovery of this little known and almost forgotten book and its translation into English by such a capable scholar as Mortimer Frank should signify an event of the first order in modern medical bibliography. Dr. Frank has also carefully revised and supplemented the book so as to bring it up to date as a means of reference in the particular field to which it was destined by its author. For such a purpose Choulant's notes in the *Archiv für die bildenden Künste*, Leipzig, 1857, were utilized as well as the translator's own vast stores of knowledge copiously and discriminatingly drawn upon. An untimely death has unfortunately set a premature end to his efforts and deprived the translator of the reward of seeing his original work fruiting into fact. It was seen through the press by his friend Dr. Fielding H. Garrison of the Surgeon General's Library, Washington, D. C., who also contributed to the volume.

The reproduction of the original title-page of the German edition of 1852 and Choulant's portrait at the beginning of the book inform one of the significant appearance of the author and of his work. These are followed by the author's and translator's prefaces, the former dated Dresden, September 15, 1851. In his own preface Dr. Frank pays his tribute of acknowledgment and indebtedness to the excellent work and inspiring personality of Karl Sudhoff, Professor of the History of Medicine in the University of Leipzig, which pleasantly reminds the reviewer of his own intercourse with that learned authority.¹ Sudhoff's expected collaboration in the present work was unfortunately prevented by the war. Dr. Garrison then

¹ In the meantime the *Geschichte der Medizin im Überblick mit Abbildungen*, by Meyer-Steineg and Sudhoff, Jena, 1921, has been published.

follows with a memorial notice in honor of his deceased friend, appropriately pointing out the main stages of his career. A lengthy and comprehensive biographical sketch of Johann Ludwig Choulant, the "historian of anatomic illustration" from the pen of Dr. Frank, in which he renders a spirited impersonation of his man, his merits and shortcomings, the latter centering in his conservatism as a "symptomatologist" of the old school, concludes the introductory chapters of the book.

The more specific sections representing the principal contents of the book (from p. 22 on) begin with Choulant's general historical review of the anatomic illustration. True to his conception of the interrelation of scientific and artistic representation, he advocates the study of the antique as representing the nude in such a way as to visualize the actual healthy form, of which purely anatomic delineation falls short. This gives rise to the splitting up of his problem into two considerations: (1) The aid rendered to anatomic science by the graphic arts, (2) the aid rendered to the graphic arts by anatomic science.

From these angles are viewed and undertaken the historical review, the gleanings of the illustrative material from the works of artists of the different periods, as is in fact derived the whole aspect of the intrinsic nature of the anatomic illustration. The historical review disposes of six successive periods which are demarcated as follows:

I. Prior to Berengarius da Carpi (1521); II. From Berengarius to Vesalius (1521-1543); III. From Vesalius to Casserius (1543-1627); IV. From Casserius to Albinus (1627-1737); V. From Albinus to Soemmering; VI. From Soemmering until modern times (beginning with 1778).

The characteristics of these periods are luminously expounded. They are deeply rooted in the development of anatomic science itself, the artistic aspect of the time (pattern and style), and not least in the mechanical means of reproduction in their chronological preference as engraving, wood cutting, plain or colored, and the daguerreotype. The following chapter is on the "Anatomical Illustrations of Antiquity and of the Middle Ages" (pp. 42-48), supplemented by Dr. Frank, and an exhaustive chapter of his own on the "Anatomic Illustration of the pre-Vesalian period" (pp. 48-87), the latter profusely illustrated from MS. material collected by Prof. Sudhoff. On pages 88-350 are found the biographies of eighty-five

anatomists and artists, an evaluation of their scientific and artistic significance as revealed by their works. Choulant proves himself here a master of historical penetration, profound knowledge, and keen critique. His realization of the essentials out of the jumble of multifarious features is admirable even if one considers that since the time of the author the aesthetic aspect and judgment in matters of art has reached a high degree of analytical potency in direct relation to the successive phases of impressionistic and futuristic art. Frequent annotations of the translator, the results of further reconnaissance upon specific lines of research, serve to round out certain inadequacies of the original text.

A list of works on artistic anatomy (pp. 351-361), also with additions by the translator, contains a number of little-known books of standard historical value, some of them quite difficult of access now. Another well-selected list of more modern works (pp. 403-412) is supplied by Dr. Garrison, as Chapter III of the appendices which comprise pages 362-412. Here Chapter I (pp. 362-369) sets forth Choulant's views on Chinese anatomy, not included in the original edition, while a short review on Turkish anatomy may be looked for on page 330. A valuable chapter—Part III of appendices (pp. 370-402)—contributed by Fielding H. Garrison and Edward C. Streeter treats of sculpture and painting as modes of anatomic illustration. It fairly comprises all the phases of development from the first trials at sculptural representation of the human form during the Palaeolithic Period to modern times, a sort of general résumé from the standpoint of the modern widely informed and scrutinizing observer. Here are found such clever remarks as, for instance, that about Michelangelo's influence upon contemporary artists, with regard to the practice among them of preparatory anatomies: "Upon this question the young giant fell with world-shaking impact, creating a seismic disturbance over the whole field of art" (p. 394). Or, speaking of plastic representation by means of color: "Manet's 'Déjeuner sur l'herbe' is only a two-dimensional affair of brilliant surfaces. One of the few modern female nudes in which musculature is apparent, it is none the less flat as a pancake. In the nudes of Renoir, tangibility, bulging volume, the sensation of mass and weight, as in a living body, are achieved by means of color alone." (p. 400.) A more detailed description of this interesting chapter is impossible within the limits of this review although it might well merit special exploitation.

The book is handsomely made up, exemplary from the angle of typographical art for its clear print, the well read text, the selection, arrangement, and reproduction of illustrations, and its tasteful exterior. A comprehensive index facilitates its use. Some objection might be vented, though, with regard to the explanatory notes on the numerous illustrations, which are found collectively near the end of the book (pp. 413-422). A way might have been found to attach them to their respective illustrations. The bibliographical arrangement also appears somewhat impractical. The personal preference of the reviewer is in every case with the alphabetical order of author's names, all the more so as the majority of them received chronological attention in the text. If, however, the chronological order were to be purposely preserved, as appears to be the object of the present arrangement, the years of publication might have been put in front of each title, detached in such a way so as to form a special and easily identifiable column. But these are minor points in view of the generally pleasing form of the work.

The historical value of Choulant's book in its new guise can not be overrated. It should, however, not be taken for mere critical querulousness if the reviewer mentions the somewhat desultory arrangement of the text as caused by the chapterwise additions by translator and editor. A greater unity in the presentation of the entire subject matter could have been attained by the merging of those valuable additions with the original text. That, however, would have meant a sacrifice of personal credit, and doubtless an enormous complication of, and a digression from, the task which the translator had set himself. The reviewer finds himself also at a loss whether to consider the work as one on science or on art, and to value it accordingly. True enough, the two problems treated here, the scientific and artistic, are inextricably interrelated, and the skill by which they are made to permeate each other, highly respectable. The synthetic characterization as an historical work seems, in fact, best adapted and thus expresses the original author's intention. The wealth of information and the brilliant style should make the English version of Choulant's book a valuable source of reference for the scientist, and of delight for the interested reader who attempts to delve into the subsoil of so deeply rooted a subject of general human interest.

BRUNO OETTINGER

Social Scandinavia in the Viking Age. MARY WILHELMINE WILLIAMS, Ph. D., Professor of History in Goucher College. New York: The Macmillan Co., 1920.

Dr. Williams's book on the Viking age is written in a simple, direct style and gives a comprehensive picture of this important age in Northern culture. Half of the book is given over to an excellent discussion of the material culture. A complete picture of Viking life is made in which all the activities and customs of the Viking from birth to death are set forth. Fatalism and his desire for a place in Valhalla are the determining factors which color every aspect of the Viking's life. His code of morals, the position of his women, his education, art, literature, religion, and system of government with its keynote of justice, prove him equal, if not superior, to many of his contemporaries.

One regrets that Miss Williams has not a more intimate knowledge of the Icelandic tongue and a more prolonged acquaintance with the archaeological collections of the north. The spirit of the old Norseman does not pervade the account which, however, is worthy of many readers and is valuable as a reference book to students of history and ethnology.

The illustrations and bibliography incorporated into the book are excellent.

ISABEL LARSEN

SOME NEW PUBLICATIONS

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———. The Origin of the Belief that Snakes Swallow their Young for Protection. (Copeia, No. 98, 1921.) New York, pp. 51-54.

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Thompson, Stith. The Indian Legend of Hiawatha. (Publications of the Modern Language Association, vol. XXXVII, no. 1, March, 1922, pp. 128-140.)

Vinogradoff, Sir Paul. Outlines of Historical Jurisprudence. London: Oxford University Press, 1920, vol. I: ix, 428 pp.

DISCUSSION AND CORRESPONDENCE

COPPER OBJECTS OF THE COPPER ESKIMOS—A REPLY TO MR. CADZOW

IN the number of the *American Anthropologist* for July-September, 1921, Mr. Cadzow requested a little more information concerning my criticisms of some of the Copper Eskimo specimens he collected at Fort Norman in 1919 and illustrated in his paper "Native Copper Objects of the Copper Eskimo" (Museum of the American Indian, Heye Foundation, 1920). He questions the statement that "for nearly twenty years the Copper Eskimos have been in almost continuous contact with the white man." If he will refer to Chapter II of my book "The Life of the Copper Eskimos," just published as Vol. XII of the *Reports of the Canadian Arctic Expedition*, or to my article "The Cultural Transformation of the Copper Eskimos" in the *Geographical Review*, Vol. XI, October 1921, pp. 543-545, he will find that from 1902 until the present time, when David Hanbury visited the country, the only years in which the Copper Eskimos did *not* come into contact with white men were 1903-5 and 1907, only four years. Moreover this does not take into account the visits of earlier explorers in the nineteenth century, Franklin in 1821, Dease and Simpson in 1839, Richardson in 1848, Rae from 1848 to 1850, McClure in 1851, and Collinson from 1851 to 1853.

Mr. Cadzow enquires further where these Eskimos found a market for the copper objects they were manufacturing for sale in Coronation Gulf in 1911. Their market was with Captain Joseph F. Bernard, of the schooner *Teddy Bear*, who sailed into Coronation Gulf in the summer of 1910, just after Mr. Stefánsson's hurried sled trip along the coast. Captain Bernard spent three years among the Copper Eskimos at this time, 1910-11 and 1912-14, trading extensively for furs and ethnological specimens. In the spring of 1911 his schooner, which had wintered at the mouth of the Kugaryuak River about 18 miles east of the Coppermine, was visited by Mr. Stefánsson and Dr. R. M. Anderson. Near the vessel was camped a band of Eskimos, many of whom were manufacturing copper implements

for sale. Dr. Anderson actually observed some of the stages in the manufacture of the copper tomahawk I mentioned. Not being a genuine article, but modelled after the Hudson's Bay Company's type commonly used by the northern Indians, he refused to buy it from its maker.

Even before the time of Captain Bernard's visit the Copper Eskimos had acquired a considerable amount of iron, but his extensive trading resulted in the total disuse of copper for harpoons and knives, although it persisted a little longer in arrows and in the implements employed in fishing. My scouring of Dolphin and Union Strait and Coronation Gulf between 1914 and 1916 resulted in the finding of only one genuine harpoon with a copper point, one copper snow-knife, and three women's knives of copper; even these were no longer used by their owners. Between 1916 and 1920 Captain Bernard, on his second visit, was able to secure about half a dozen more from the eastern end of Coronation Gulf and from Dease Strait. By 1920, Captain Bernard informs me, bows and arrows had disappeared, and the natives had ceased to use copper at all except for rivets and the manufacture of specimens for sale.

The Eskimos of the Coppermine River region were affected by this intercourse earlier than any other group from 1908 onwards, since they were able to trade with white men at Great Bear Lake. I spent several weeks among them between 1914 and 1916 without finding a single copper knife or harpoon that had been in genuine use. From 1916 onwards Captain Bernard purchased every bow and arrow set and every copper implement that he could find, except those expressly manufactured for sale. During the same period the employees of the Hudson's Bay Company, which has several posts in the country, the Anglican missionaries, and the members of the Royal North West Mounted Police were ransacking the territory for the few "curios" that remained. It is very improbable, therefore, to say the least, that a family of natives from the vicinity of the Coppermine River should have retained a full supply of copper implements down to 1919, or that they should have carried them inland as far as Fort Norman (especially their sealing gear, which is always left on the coast), unless these articles had been manufactured for sale. We may take it for granted that the majority of Mr. Cadzow's specimens were so manufactured. Now an article made expressly for sale may be as valuable ethnologically as one that has been in genuine use for years. The danger is that the native

is very apt to depart from the old types and introduce new patterns and materials in order to secure a higher price from his customers. I asserted that this had actually occurred in one of Mr. Cadzow's specimens, the knife figured in Plate Va, and probably in a second, the harpoon of Plate IXd.

Mr. Cadzow now draws my attention to the copper-bladed knife illustrated in "The Stefánsson-Anderson Arctic Expedition," *Anthropological Papers of the American Museum of Natural History*, Vol. XIV, fig. 46, and points out its resemblance to his own specimen. He will find several more examples of the same type in the Victoria Memorial Museum at Ottawa, and probably elsewhere as well. Their history is as follows. The Eskimos who traded with Captain Bernard were manufacturing implements for sale as early as 1911, for example non-clasping copper pen-knives, large curved knives like our butchers' knives with only one edge (their own copper knives were always two-edged), and the type of copper knife figured by Mr. Stefánsson and Mr. Cadzow. Captain Bernard was too conscientious a collector to encourage the industry, and the natives brought me many specimens that he had refused to buy, confessing that they had been manufactured for sale and were not native to their own culture. The uselessness of these knives was shown by the fact that they were never employed by their owners except in an emergency. Mr. Stefánsson evidently obtained his specimen in 1911 from a native who had come under the influence of the new trade.

In regard to the question as to whether the sealing harpoons ever had copper shanks or foreshafts Mr. Cadzow refers me to Mr. Stefánsson's statement that the Kanghiryuarmiut of Prince Albert Sound use copper for "long-bladed hunting knives, the ordinary half-moon shaped woman's knives, crooked knives for whittling purposes, copper rods for the foreshafts of seal harpoons . . ." I was already aware of Mr. Stefánsson's statement, but considered that in making his enumeration of all the various uses of copper his memory had failed him for a moment and involved him in a slight error. I have since been informed, however, that he did secure one specimen of a harpoon with a copper foreshaft in Prince Albert Sound. As far as I am aware this is the only specimen that has ever been reported, except Mr. Cadzow's, which was certainly made for sale; all the older specimens of harpoons have antler foreshafts, and only a few of the more recent have them of iron or steel.

I am therefore inclined to regard Mr. Stefánsson's specimen as a very exceptional form due simply to the temporary lack of an antler; but I should be very glad to learn from Mr. Cadzow whether he knows of any other genuinely old specimen with a copper fore-shaft, or of any reference to such in the literature.

In conclusion I may take this opportunity to correct two small errors in the titles of illustrations to "The Stefánsson-Anderson Arctic Expedition."¹ Fig. 5 on p. 50 is described as a "Pull for Cord used in hauling Seals." Its shape and manner of ornamentation prove it to be the handle of a bow-case. Toggles used for hauling seals are illustrated in fig. 65 of the same volume. Again fig. 64b is described as a "Knot-opener." It may possibly be used for that purpose in an emergency, although the Eskimos generally use their teeth or one of the bone implements from the tool-bag such as are shown in fig. 39 a. In reality it is an implement that was fastened to the bow-case and used for pinning through the wings of ptarmigan and other birds; hence its name, *aqargiqsiun*, i. e., "ptarmigan tool."

DIAMOND JENNESS

THE CENTRAL ARAWAKS: DR. ROTH'S REJOINER.

THE remarkable language employed by Professor Farabee and his friend (*American Anthropologist*, vol. 23, no. 2, pp. 230-233) in connection with my review of the former's "Central Arawaks," deserves only brief consideration.

It is quite true that Professor Farabee wrote me for a review, but in his letter he particularized the English scientific press, and for reasons I did not care to detail but with which he must now be conversant, I made my excuses and tried to shelve the honor upon others. Had I not heard a discussion of the work in Georgetown or seen the review appearing in the *American Anthropologist* (vol. 21, pp. 196-198) I would not have written either a book review or a comment. I expressed my personal opinion only when I saw that the public and fellow scientific inquirers might be inclined to accept the book without question as an original and authoritative contribution to the subject.

I have no "unexplainable animus" against anyone, and my expression "backed by the lavish expenditure of money" was only to

¹ Mr. Stefánsson was absent in the Arctic when this book was published and was neither able to correct the MS. nor to select the illustrations. He cannot therefore be held responsible for these errors.

convey a gentle reminder that in scientific undertakings of this nature it is not the dollar but the brain that counts. I repudiate emphatically the charge that I have cast any reflection on the institution to which my gifted friend is attached.

I could have challenged more of the ethnological material in Professor Farabee's book, but limited myself to some of the passages confirmed and annotated by Mr. Melville, than whom in matters connected with the Wapisiana Indians there can be no higher authority. I devoted no small amount of time to a careful perusal of "The Central Arawaks," and am only too glad to admit that I have discovered at least three or four passages worthy of future reference and inquiry. Much of the ethnographical material supplied by the Professor is common to neighboring tribes or Arawaks elsewhere and is already recorded in the literature—of which the author would seem to have but a hazy glimmer in view of the bibliography supplied. The general absence of detailed information in the description of so specialized a group of Arawaks as the Wapisianas is not what scientific workers along the same lines of research have a right to expect. With regard to the linguistics, I compared Dr. Farabee's notes with my own and was dissatisfied; what then fairer than to take the highest authority I could and give expression to it? Only yesterday I was in conversation with Mr. Melville, when we again discussed the matter, and I find that he has no cause whatever to alter his original opinion. He tells me that he believes the Atorais at the present time do not comprise more than twelve souls; he is certain that the language they most frequently speak, except in the intimacy of family intercourse (which naturally must very rarely occur), is Wapisiana.

It is not to be denied that I have never visited the Wai-Wais—I broke down with fever in my attempt to reach them last year—but it does not follow that I should know nothing about them. They have been interviewed by friends of mine other than Messrs. Farabee and Ogilvie—I have someone collecting among them at the present time—and reliable records of them and some of their doings are not infrequent in the literature.

As to the interior forests of Guiana, which Professor Farabee says I have never visited, I have done so—as late even as the commencement of the present year.

WALTER E. ROTH

DEMERARA RIVER, BRITISH GUIANA
23d Nov., 1921.

BRIEF COMMUNICATIONS

THE AVUNCULATE IN PATRILINEAL TRIBES

THE avunculate remains one of the favorite weapons in the arsenal of those writers who regard mother-sibs as necessarily earlier than father-sibs; to these scholars authority wielded by the maternal uncle is a sure sign of a prior condition of maternal descent because they cannot conceive of any cause that could possibly create such a state of affairs except the matrilineal organization of society. Following Tylor, they define that organization by a series of indicative features, any one of which alone is conceived as a "survival."

In my book on *Primitive Society*, p. 171 seq., I have made the suggestion that, like other customs, the avunculate may have been borrowed from an alien tribe: the patrilineal Omaha, e. g., may be assumed to have adopted the custom from the matrilineally inclined Pawnee, who in turn may have borrowed it from the definitely matrilineal Pueblo Indians. The Omaha themselves in that case need never have passed through a matrilineal stage even though an organic relation existed between that stage and avuncular power. I also pointed out that the special relationship between the maternal uncle and his sister's son is not a phenomenon of wholly unique character but represented only one of a category of interesting kinship phenomena. If, then, the avunculate be a symbol of pristine mother-sibs, the special regard for the paternal kin among various matrilineal tribes should be correspondingly interpreted as a relic of a former patrilinear society. These considerations I should now like to supplement with another line of argumentation.

The matrilineal complex—including maternal descent, matrilineal inheritance, and the avunculate—cannot be supposed to have arisen ready-made: certain of its elements are presumably earlier, others later. Let us assume with Tylor that maternal descent is at least frequently a consequence of matrilocal residence, which thus becomes the fundamental feature of the complex. The avunculate may then be conceived at once as primarily related not to maternal descent but to matrilocal residence: because the children grow up under the same roof as their mother's brother an entirely special

relationship arises between them and him, and it is only because this form of residence leads to maternal descent that the avunculate is coupled with the full-fledged mother-sib.

Let us now postulate a community practising matrilocal residence and avuncular usages without as yet having evolved definite matrilineal sibs. All that is required to switch development toward the combination of father-sibs with the avunculate is a change from matrilocal to patrilocal residence. The avunculate, once firmly established, might long persist through aboriginal conservatism provided only that the change is a merely domiciliary one and does not involve a change in the community of the bride and groom. That a shifting from matrilocal to patrilocal residence (and vice versa) is entirely conceivable appears clearly from a scrutiny of relevant data, which often present a suggestively intermediate status (*Primitive Society*, p. 71 seq.). But patrilocal residence, when once definitely established, may in turn lead to a definite fixing of descent in the paternal line. As the last step in this historical sequence we should then have the empirical condition that calls for explanation, to wit, the union of the avunculate with paternal descent. To state the hypothesis as clearly as possible, I will resort to the following schematic representation:

1. Matrilocal residence.
2. Matrilocal residence with the avunculate.
3. Vacillation between matrilocal and patrilocal residence; avunculate.
4. Patrilocal residence triumphant; persisting avunculate.
5. Patrilocal residence with patrilineal descent; the avunculate as a survival not of matrilineal descent but of matrilocal residence.

ROBERT H. LOWIE

THE AVUNCULATE AMONG THE VANDAU

THE Vandau of Portuguese South Africa have purely paternal succession. The individual belongs to his father's sib and he has his father's taboo. Nevertheless, the maternal uncle is the leading person in each generation. According to the present attitude of the Vandau, this condition is based essentially on the following principles: (1) the senior member of a family takes a position of social prominence; (2) husband and wife stand on the same level of seniority; (3) in a fraternity, males are seniors of females; (4) in indirect relations (man and his brother-in-law, man and his cousin, etc.), except in some cases of affinity, the degree of relationship is determined by

the relation of the intermediate to the person spoken of. From this it follows that among two sets of brothers and sisters who have become related through the marriage of one of the males of one set to a female of the other set, the married couple are on the same level of seniority. The wife's brother being her senior, becomes the senior of the husband. The wife's sisters are on the same level with her. The man's brothers are on the same level with him. His sisters are his juniors. Hence the wife's brother is the senior member of the whole generation and has a commanding position in the affairs of his sisters' children. Since the woman's brothers are her seniors, the brothers' daughters are with her on the same level of seniority and are called by her sisters, while the brothers' sons are also her seniors, being seniors to their sisters. Hence a woman's brother's son, being her brother, is her own and her husband's senior, and the same is repeated generation after generation. Consequently, my mother's brother, being her senior, becomes doubly my senior; and his son, being again a brother to my mother, is doubly my senior and so on down the whole line. In the female line this condition does not prevail. We have, therefore, the following series of seniority:

Second Order Seniors:	Mother's brother and all his male descendants. Grandfathers.
First Order Seniors:	Wife's brother and all his male descendants. Father and his brothers and their wives. Mother and her sisters and their husbands. Mother's brother's daughter.
Equals:	Man and his brothers and his brothers' wives. Woman and her sisters and her sisters' husbands. Husband and his wife and her sisters. Wife and her husband and his brothers. Man's father's sisters.
First Order Juniors:	Children. Woman's sisters' children. Man's brothers' children. Wife's sisters' children. Husband's brothers' children. Man's sister.
Second Order Juniors:	Grandchildren. Husband of granddaughter. Man's sisters' children. Man's brothers' grandchildren. Woman's sisters' grandchildren. Wife's sisters' grandchildren. Children of anyone who is called "child."

The essential point of interest is that in this case the prominent position of the uncle is developed in such a way that there is no evidence that it must be considered as a survival of maternal succession.

It is not necessary to assume that the present explanation of the Vandau reflects the actual history of the development of the system, but we have an instance of the possibility of the development of the avunculate without any trace of maternal descent.

FRANZ BOAS

THE SKULL FROM BROKEN HILL IN RHODESIA

DISCOVERIES of fossil human remains are of rare occurrence. Since all the world is more or less directly interested in them, new discoveries of this kind should be made known promptly and the knowledge extended as widely as possible. In this respect British anthropologists have more than once set a good example by publishing preliminary reports. Such a report on the skull from Bone Cave at Broken Hill, northern Rhodesia, appeared in the *Illustrated London News* of November 19, 1921.

Broken Hill is 650 miles north of Bulawayo and some 4,000 miles south of southern Europe. At the base of Broken Hill, which has an elevation of about 60 feet, is the entrance to Bone Cave, appropriately named because of the hundreds of tons of animal bones found therein. In penetrating the hill to a considerable distance, the cave drops slowly at first, and then more rapidly, to a depth of 90 feet below the entrance level. The last 50 feet were filled to the top with loose debris containing animal bones. At the bottom of the mass, 90 feet below the entrance, the human bones were discovered.

The greater part of a skeleton was found; only the skull, however, was saved, the rest suffering the fate of the ordinary animal remains. Later, after the manager of the property had seen the skull, it was decided to search for additional human bones. This resulted in the discovery of a complete tibia, two ends of a femur, part of a pelvis, a collar bone, and portions of a shoulder blade and upper jaw. It is not known definitely whether any of these belong with the nearly complete cranium. It may, however, be assumed that all belong to the same race.

The cranium is complete except for the loss of a portion involving the right temporal bone and the right half of the occipital including a part of the margin of the foramen magnum. The most striking aspect of the cranium is the facial. Seen either from the front or the side, it approaches the gorilloid type more nearly than does any other known human cranium. This is especially true of the brow ridges and is apparent even in minor details. When, however, it

comes to the dentition and its effect on the molding of the upper jaw, the resemblance ceases. The form of the nasal bridge, the aperture, and the anterior nasal spine is intermediate between the Neandertal type and that of the anthropoids. The relatively long distance between the anterior nasal spine and the median point on the alveolar margin serves to accentuate the prognathism.

As already indicated the dentition is human; the teeth, originally sixteen in number, are set in a horse-shoe shaped alveolar arch, which outlines a handsomely domed palate. The teeth are much worn and in such manner as to prove that the lower teeth met the upper edge to edge—a feature common to the dentition of early races. The teeth had suffered considerably from caries, but perhaps no more so than was the case with the skull from La Chapelle-aux-Saints. The third molars are smaller than the other molars, but this is likewise true of the Weimar lower jaw. Another distinctly human feature intimately associated with the relatively broad palate and the horse-shoe shaped form of the dental arch is the well-developed posterior nasal spine.

In proportion to the face, the brain case is relatively small—especially low and narrow at the front. The generous allowance of space for the implantation of the temporal and nuchal muscles is in keeping with the facial characters. Both connote a preponderance of physical over mental capacity. The foramen magnum is situated farther forward than in the skull from La Chapelle-aux-Saints, suggesting that the race from Broken Hill had succeeded in attaining the erect posture more completely than had Neandertal man.

The failure to recover the lower jaw is a misfortune. We know, however, that it must have been of enormous dimensions; for Dr. Smith Woodward finds that the largest known fossil human lower jaw, that of Heidelberg, is both too narrow and too short to fit the cranium from Broken Hill.

There is at least one lesson to be drawn from the discovery at Broken Hill; and that is the danger of being misled by individual variation in a series so woefully incomplete as is our present list of fossil human skulls. With due allowance for such variation, it would seem reasonable to assume that the man from Broken Hill is a variant of the Neandertal type.

GEORGE GRANT MACCURDY

ANTHROPOLOGY AT THE BROOKLYN MEETING AND PROCEEDINGS OF THE AMERICAN ANTHROPOLOGICAL ASSOCIATION

The American Anthropological Association held its twentieth annual meeting at the Brooklyn Institute Museum, Brooklyn, N. Y., December 28 and 29, 1921.

Two meetings of the Council were held with President Farabee in the Chair.

COUNCIL MEETING, DECEMBER 28, 9:45 A. M.

The following reports were read and accepted:

REPORT OF THE SECRETARY

The proceedings of the last annual meeting of the American Anthropological Association were published in the *American Anthropologist* for January-March, 1921. There has been no special meeting of the Association nor of the Council during the year.

The Executive Committee has had the following matters brought to its attention during the year:

March 17. A petition was received from B. Laufer, S. A. Barrett, and J. E. Brown for permission to found a Middle-western branch of the American Anthropological Association. The President was authorized to grant the petitioners the right to form a tentative organization, pending final decision by the Council.

May 20. The Association was invited to accept tentatively membership in the Institute of Tropical American Research, and to appoint a representative to attend the organization meeting held June 15th, awaiting final action of the Council at the next meeting.

The anthropological membership of the Division of Anthropology and Psychology in the National Research Council is now as follows:

To serve until July 1, 1922: R. B. Dixon, A. L. Kroeber, A. M. Tozzer.

To serve until July 1, 1923: Clark Wissler, F. W. Hodge, J. H. Breasted.

To serve until July 1, 1924: B. Laufer, J. W. Fewkes.

The Association has lost by death during the year four members: Bertrand F. Bell; Charles P. Bowditch, a founder; James P. Stevens, a founder; and Frederick G. Wright.

Fourteen members have resigned, four have died, and twenty-five new names have been added to the list, making a net gain of seven. The membership at present is as follows:

Honorary members.....	5
Life members.....	12
Regular members.....	507
	524

Respectfully submitted

ALFRED V. KIDDER,
Secretary.

REPORT OF THE TREASURER

Receipts

Balance on hand, December 20, 1920.....		\$ 565.69
Anthropological Society of Washington.....	\$ 128.00	
American Ethnological Society.....	431.37	
Annual Membership dues:		
1919.....	\$ 12.00	
1920.....	63.07	
1921.....	1,182.81	
1922.....	834.62	
1923.....	18.00	
Life Membership.....	100.00	\$2,210.50
Sale of publications.....		529.94
Reimbursements and overcharges.....		138.03
Interest.....		10.45
Special fund.....		10.00
		\$4,023.98

Disbursements

New Era Printing Co.....	\$1,656.06	
Joyce Engraving Co.....	165.64	
Editor Treasurer's and Secretary's expenses.....	214.78	
Reimbursements.....	43.70	
Total disbursements.....	\$2,080.18	
Cash on hand.....	\$1,943.80	\$4,023.98

THE BROOKLYN MEETING

101

Resources

Cash on hand, December 21, 1921.....			\$1,943.80
Due from sales:			
1920.....	\$ 1.80		
1921.....	37.75	\$ 39.55	
Due from dues:			
1919.....	\$ 18.00		
1920.....	43.00		
1921.....	108.00	\$ 169.00	
Due from Anthropological Society of Washington and American Ethnological Society after pub- lication of American Anthropologist, vol. 23, no. 3, about.....		\$ 150.00	\$ 358.55
Total Resources.....			<u>2,302.35</u>

Liabilities

Membership dues from 1922 already paid.....	\$ 834.62		
Membership dues from 1923 already paid.....	18.00		
Life membership to be transferred to permanent fund.....	100.00		
Cost of American Anthropologist, vol. 23, no. 3 (estimated)...	650.00		
Total liabilities.....	\$1,602.62		
Net excess of resources over liabilities.....	\$ 699.73	\$2,302.35	

Cost of Publications

<i>American Anthropologist</i> , vol. 22, no. 4:			
Engravings.....	\$ 17.69		
Printing.....	375.22	\$ 392.91	\$ 392.91
<i>American Anthropologist</i> , vol. 23, no. 1:			
Engravings.....	\$ 81.19		
Printing.....	574.30	\$ 655.49	
Reimbursements.....	34.17	\$ 621.32	
<i>American Anthropologist</i> , vol. 23, no. 2:			
Engravings.....	\$ 73.21		
Printing.....	505.90	\$ 579.11	
Reimbursements.....	66.71	\$ 512.40	
Net cost.....		\$1,526.69	
Reprints and distribution.....		150.42	
Total cost.....		<u>\$1,677.13</u>	

PERMANENT FUND

Receipts

Balance, December 20, 1920.....			\$1,322.12
Interest, April 18, 1921.....	\$ 4.24		
Interest, October 18, 1921.....	4.26		8.50
Total receipts.....			<u>\$1,330.62</u>

Investments

Liberty Bonds, June 11, 1919.....	\$190.90	
W. S. S., June 11, 1919.....	16.68	
W. S. S., October 21, 1919.....	4.21	
W. S. S., May 17, 1920.....	4.16	
W. S. S., December 13, 1920.....	4.23	
W. S. S., April 18, 1921.....	4.15	
W. S. S., October 18, 1921.....	4.21	\$ 228.54
Cash in envelope.....	2.08	
Loan to general fund.....	1,100.00	
Total investments.....	\$1,330.62	

The accounts of the Treasurer, John R. Swanton, have been examined and found correct.

Signed:

January 5, 1922.

J. WALTER FEWKES,
A. HRDLIČKA,
Auditing Committee.

The total receipts have been about four hundred dollars less than during the year preceding, but this difference is mainly accounted for by the advanced date adopted the year before for sending out the bills and the fact that the third number of the *Anthropologist* for the current year is not yet out and in consequence we have not received the usual payments from the two local societies for copies furnished their members. No rehabilitation fund has been called for this year, but the sum entered under that head last year is exactly offset by one life membership not yet placed in the permanent fund. Sales have been exceptionally good.

The total disbursements, owing to the suspension of the *Memoirs* and the fact that only three numbers of the *Anthropologist* have been issued, have been very much less. If the cost of the forthcoming number does not greatly exceed the figure estimated the total cost of our publications for the year will fall within the budget, while the other expenditures will be less than one-half the amounts authorized.

Whatever setbacks the Association has experienced this year in the matter of income and whatever it may experience in the near future I believe to be owing mainly to our inability to secure prompt publication for our journal, a condition which it is hoped is merely temporary.

The Treasurer has performed the work of his office—in addition to that of Editor—practically without assistance. His experience makes him feel sure that each of these positions should receive the unhampered attention of one individual. If any offices are to be combined, it should be those of Secretary and Treasurer, and in any case the Treasurer should have charge of the mailing list. With the present high cost of printing the utmost economy must be exercised, but the Treasurer should receive sufficient relief from routine work to devote his attention to the solicitation of new members and other means of increasing the financial resources of the Association.

I believe that our relations with news agencies are capable of improvement but would prefer that this matter be taken up by the new Treasurer in conjunction with members of the Association better acquainted with business usages than is the present incumbent of the office.

Respectfully submitted,

JOHN R. SWANTON,
Treasurer.

REPORT OF THE EDITOR

Only three members of the *American Anthropologist* have appeared during the past year, and one of these, volume 22, number 4, was entirely under the editorial supervision of my predecessor, Dr. Goddard. The third number of volume 23 is, however, nearly paged up and will be delivered shortly. In accordance with the vote of the Association at its last annual meeting the publication of the *Memoirs* has been discontinued, but some compensation has been made by increasing the pages in each issue of the *Anthropologist* by about twenty-five. An effort was made by one of the Associate Editors to secure additional funds for a Memoir but so far there has been little response. Nevertheless, an effort to print one short paper would have been made—the funds of the Association appearing to render it possible—had not the difficulty of getting our regular issues through the press made it seem useless to attempt anything new.

The Editor has suggested to several members of the Association the possibility of issuing the shorter contributions, news items, and so on in the form of a small monthly somewhat like the English publication *Man*. This would be an alternative to the issuance of a new series of *Memoirs*. It is believed that a medium of this kind would bind American anthropologists more closely together, and that it

would serve, much more than can be the case with the present quarterly, for the announcement of new discoveries. However, until greater regularity can be assured in the publication of the present journal and conditions of publication are more settled, it would probably be unwise to venture upon any new enterprises.

Like his predecessor, the present Editor believes that several general articles dealing with anthropology as a science ought to be secured each year, but so far he has not been so successful in securing them.

The review section has continued under the charge of Dr. Robert H. Lowie, who, as well as the other Associate Editor, Dr. Frank G. Speck, has given the *Anthropologist* steady and faithful service. Besides their other work for the journal, the Associate Editors have contributed materially to the news and notes. The Editor also wishes to express his indebtedness to Mr. Stanley Searles and Mr. De Lancey Gill, Editor and Illustrator of the Bureau of American Ethnology, for constant advice and assistance. The members of the Publication Committee appointed at the last annual meeting have responded promptly and effectively to every call made upon them.

Respectfully submitted,

JOHN R. SWANTON,
Editor.

The Treasurer recommended the following budget for 1922, which was adopted:

Publications.....	\$2,500
Illustrations in certain cases.....	100
Expenses of Editor, Treasurer, and Secretary..	550
	\$3,150

Dr. H. J. Spinden, delegate of the Association to the recent meeting of the National Eugenics Society, presented a report on the anthropological aspects of the activities of the Society.

Dr. Peabody presented the following:

REPORT OF THE CHAIRMAN OF THE GOVERNING BOARD OF THE AMERICAN SCHOOL IN FRANCE OF PREHISTORIC STUDIES

To the President of the American Anthropological Association:

The Governing Board of the American School in France of Prehistoric Studies is at present made up of the following members:

To represent the Archaeological Institute of America: William N. Bates, University of Pennsylvania; William N. Stearns, McKendrie College; George H. Chase, Harvard University.

To represent the American Anthropological Association: George Grant MacCurdy, Yale University; N. C. Nelson, American Museum of Natural History; Charles Peabody, Peabody Museum (Chairman).

Members at large: Aleš Hrdlička, Smithsonian Institution; Henry Fairfield Osborn, American Museum of Natural History; Edward K. Putnam, Davenport Academy of Sciences.

Professor George Grant MacCurdy of Yale University was elected first Director of the School, from July 1st 1921 to July 1st 1922; he arrived at Villebois-Lavalette (Charente) and began work early in July 1921. He was accompanied at the excavations by Mrs. MacCurdy, and by three students. One of these, Mr. A. W. Pond of Beloit, Wisconsin, won the scholarship of two thousand francs offered by the School and is at present in Paris continuing his work under Professor MacCurdy's direction; he is working his way and it is hoped that he may be able to continue throughout the twelve months. The results of the excavations in our Station, known as La Quina M,¹ were of fair abundance and quality and of Mousterian age, and were distributed between Yale University and the Davenport Academy of Sciences—it will be remembered that any institution guaranteeing one hundred dollars towards any year's budget has a right to a share in the results of the season's digging. Besides the Mousterian site of La Quina M some excavation was carried on fruitfully in Aurignacian and Magdalenian Stations in the vicinity. The students were given opportunity of work and observation in the laboratory established near the Station by Dr. Henri-Martin; this contains a synoptic collection of French prehistoric archaeology and zoölogy.

The coöperation and hospitality of Dr. and Mrs. Henri-Martin were constant and most gratifying; from the point of view of the social life of the students as well as from that of their scientific progress, the generous provider of the site, with all his family, deserve our most cordial appreciation. After two months of excavation, trips and excursions were organized; these included nine days at Les

¹ La Quina is the most important Mousterian rock-shelter in France, at present by gift of Dr. Henri-Martin the property of the French Government. The section known as La Quina M is a part of the property of Dr. Henri-Martin, and has been allocated freely by him to the American School, it immediately adjoins the State property.

Eyzies, visits to Count Bégouen and his caverns of Tuc d'Audubert and of Trois Frères, and an examination of the caves of Gargas and of Mas d'Azil.

The budget for the second year, from July 1st, 1922, to July 1st, 1923, has been fixed at thirty thousand francs, instead of twenty-one thousand francs as was the case last year; this money is in sight. The increase is in part due to the addition of a scholarship of five thousand francs, and to the necessity of providing a loan fund; this in the view of your Chairman is a necessity in order that the Director may have some means at his disposal for assisting students who need help.

Respectfully submitted,

CHARLES PEABODY,
Chairman.

The following committees were appointed:

On nominations: Wm. E. Gates, N. C. Nelson, S. K. Lothrop.

On resolutions: F. Boas, A. V. Kidder.

The following new members were elected: John L. Baer, Harry K. Barnes, Peter A. Brannon, Norris L. Bull, Donald A. Cadzow, Wm. H. Claffin, C. B. Cosgrove, Miss Grace Dangberg, Denison University Library, Dr. F. Maxwell Foshay, Free Public Library of Newark, N. J., Gilbert Garvin, Mrs. Marian K. Gould, Madison Grant, Mrs. Gladys S. Harrison, Oliver P. Hay, W. de F. Haynes, Rev. Charles W. Hepner, M. J. Herskovits, Karl W. Hiersemann, James Jerome Hill Reference Library (St. Paul, Minn.), Isadore Kallet, Dr. Edward J. Kempf, Dr. James G. Kennedy, Mrs. Louise Kneeland, Rev. Geo. A. Kreidel, Col. Geo. E. Laidlaw, John D. Leechman, The London School of Economics and Political Science, Prof. Henry F. Lutz, Main Library of Milwaukee, Wis., The Maya Society, Meulenhoff & Co. (Amsterdam, Netherlands), Wm. A. Moore, Victor Morawetz, Museo Nacional de Guatemala, Museum of History, Science & Art (Los Angeles, Cal.), Wm. E. Myer, Dr. John Otto Nelson, Thomas E. Penard, Princeton University Library, Prof. Paul M. Rea, Oliver Ricketson, Jr., Dr. Frank Raymond Sandt, F. H. Saville, Miss Ruth Otis Sawtell, E. Marshall Scull, John Alden Seabury, Sr. Frederico Sommer, Rev. Caleb R. Stetson, Dr. R. J. Terry, University of Nevada Library, University of Oregon Library, University of Oklahoma Library, George Vaillant, W. D. Weatherford, Wells College Library, Mrs. John Wetherill, Miss A. E. White, Prof. Leo Wiener.

COUNCIL MEETING, DECEMBER 28, 9 P. M.

The Chairman of the Committee on Regional Branches offered the following amendment to the constitution of the Association, which was passed and referred to the general meeting of the Association for final action:

The members of the Association living in the Central States are empowered to hold separate meetings and to organize for that purpose under the name of the American Anthropological Association, Central Section. As a section they shall have full freedom of organization and control in so far as their activities relate to such meetings, but in accordance with the Constitution of the Association. There shall be an intersectional committee, composed of two members from the Central States section and two members from the parent organization who are not members of the Central States section, for the consideration and settlement of all questions that may arise between the section and the parent organization.

Dr. Wissler, delegate from the Association, reported on the progress of the organization of the Institute of Tropical Research. It was moved and passed that the Association accept membership in the Institute and that Dr. J. W. Fewkes be appointed delegate thereto.

It was moved and passed that the President be empowered to appoint a delegate from the Association to the Twentieth International Congress of Americanists in Rio de Janeiro, Brazil, in August, 1922. Dr. A. Hrdlička was appointed.

It was moved and passed that a committee be appointed to consider methods of voting by mail on questions of particular moment which may be submitted to the Council. P. E. Goddard, A. Mason, and A. L. Kroeber were appointed as members of this committee.

The following list of officers was presented by the Nominating Committee:

President: W. C. Farabee.

Vice-President (1925): S. Culin.

Secretary-Treasurer: A. V. Kidder.

Editor: J. R. Swanton.

Executive Committee: G. B. Gordon, F. W. Hodge, A. Hrdlička, C. Peabody.

Council (1925): H. H. Donaldson, George Engerrand, C. E. Guthe, J. P. Harrington, L. W. Jenkins, T. Michelson, W. C. Mills, C. B. Moore, W. K. Moorehead, C. Peabody, E. K. Putnam, M. H. Saville, A. B. Skinner, Louis R. Sullivan, C. C. Willoughby.

Representatives of the Association on the National Research Council to serve for three years from July 1, 1922: A. E. Jenks, M. H. Saville.

Delegates of the Association to Section H of the A. A. A. S.: C. Wissler, J. W. Fewkes.

ANNUAL MEETING, DECEMBER 29, 2 P. M.

The amendment to the Constitution of the Association authorizing the formation of the Central States section was adopted.

The officers and members of the Council as nominated were declared elected by a vote ordered cast by the Secretary.

The President, Dr. William C. Farabee, appointed the following committees:

Joint Committee on Relations with Central States Section: C. Wissler, G. G. MacCurdy, B. Laufer, S. A. Barrett.

Committee on Program: F. G. Speck (chairman), A. V. Kidder (sec'y *ex-officio*), P. E. Goddard, H. U. Hall, M. H. Saville, C. M. Barbeau, S. J. Guernsey, N. M. Judd, S. K. Lothrop.

Committee on Finance: R. B. Dixon (chairman), W. E. Gates, G. G. Heye, C. B. Moore, E. E. Ayer, W. H. Furness, C. L. Hay, A. M. Huntington, J. B. Stetson, Jr.

Committee on Policy: Clark Wissler (chairman), W. H. Holmes, S. Culin, G. B. Gordon, W. C. Mills, C. Peabody, F. Boas, J. W. Fewkes, A. E. Jenks, E. C. Parsons, A. M. Tozzer.

Committee on Publication: W. C. Farabee (chairman *ex-officio*), J. R. Swanton (sec'y *ex-officio*), S. A. Barrett, S. Culin, J. W. Fewkes, A. A. Goldenweiser, F. W. Hodge, E. A. Hooton, A. Hrdlička, A. E. Jenks, A. L. Kroeber, B. Laufer, G. G. MacCurdy, W. K. Moorehead, S. G. Morley, E. Sapir, H. J. Spinden, H. N. Wardle, C. Wissler. *Advisory Subcommittee:* F. W. Hodge (chairman), J. W. Fewkes, B. Laufer.

The following resolutions were offered and passed:

(1) Whereas, certain members and friends of the American Anthropological Association returning from journeys in Mexico report with praise upon the commendable and far-sighted policy of scientific exploration and preservation of the ancient ruins and monuments, and

Whereas, special attention has been directed to the excellence of the work carried on in the group known as the Citadel of San Juan Teotihuacan under the immediate charge of Dr. Manuel Gamio of the Direction of Anthropology of the Ministry of Agriculture, and

Whereas highly interesting portions of the foundations of the great Pyramid of ancient Tenochtitlan have also been uncovered in the heart of Mexico City which should, if possible, be preserved, therefore be it

Resolved that the American Anthropological Association extend its compliments to the Ministry of Agriculture of the Republic of Mexico, congratulating it upon the work already done and expressing the sincere hope

that means will be found for continuing it, thus preserving for the entire world these priceless treasures of ancient America; and be it further

Resolved that this resolution be read into the minutes of the American Anthropological Association and copies of the same be transmitted to the Secretary of Agriculture and to Dr. Manuel Gamio.

(2) Since it has come to our knowledge that steps are now being taken by citizens of the State of Illinois to preserve the large and unique group of prehistoric earthworks near East St. Louis, we desire to express our hearty approval of these efforts and our sincere wishes for the success of the undertaking. Not only do we regard the preservation and restoration of this group as urgent, but it is also highly desirable that an early survey of the whole site be made to reveal the culture of the builders and their place in the prehistoric life of the Mississippi valley.

(3) The American Anthropological Association expresses its sincere thanks to the Brooklyn Institute Museum, to its Trustees, and to its officers for their liberal hospitality and for the many kindnesses received.

(4) The American Anthropological Association further expresses its thanks to the local committee for the very complete arrangements made for the meeting of the Association.

(5) The American Anthropological Association expresses its high appreciation of the value of the *American Journal of Physical Anthropology* and its conviction that the maintenance of the journal is essential for the welfare and development of anthropological science in the United States. If the resources of the Association were not absorbed completely by the maintenance of the *Anthropologist* it would gladly undertake to guarantee the continuance of the *American Journal of Physical Anthropology*, which was established by the initiative of Dr. Aleš Hrdlička and is maintained in its present efficient form solely by his efforts. It is absolutely necessary that the continuance of the journal should be guaranteed by an institution which is capable of carrying the burden.

For this reason, the American Anthropological Association recommends the journal to the consideration particularly of the Smithsonian Institution and of the Wistar Institute. With the consent of the editor, the Association declares itself ready to furnish all guarantees in regard to the scientific character of the journal that may be required by either institution, and urgently recommends the fullest support of the undertaking. In the opinion of the Association it would seem most fitting and best from the standpoint of Anthropological science if the journal could be made one of the series of journals published by the Wistar Institute.

(6) Professor Arnold van Gennep, one of the most progressive French ethnographers, is visiting all the important cities of the country and lecturing on various investigations carried on under the direction of the Département d'Instruction Publique. The tour was inaugurated by this department for the purpose of promoting scientific relations between this country and France. Professor Van Gennep's wide knowledge and great enthu-

siasm mark him as a fit torch bearer of learning and comity between nations. He is an authority on aboriginal and prehistoric ceramics, has made important contributions to the branch of folk customs, especially by his discovery of the "passing rites" as a primitive law and by his work on the subject of nationalities. He has carried on explorations in North Africa and other countries; was the founder and editor of the *Revue d'Ethnographie*; and was the organizer and Secretary-General of The International Congress of Ethnography held in Switzerland in 1913.

The American Anthropological Association is glad to welcome Professor Van Gennep to our midst and wishes him success in his work in America.

It was moved and passed that the next meeting of the Association be held in conjunction with Section H, A. A. A. S., at Boston.

The following papers were presented:

WILLIAM FOX, *Director of the Brooklyn Institute Museum*; Address of welcome.

FRANZ BOAS, The relationship systems of the Vandau and Thonga.

CHARLES PEABODY, and GEORGE GRANT MACCURDY, The new Prehistoric School, American digging in France.

WARREN K. MOOREHEAD, The situation at the Cahokia Mounds.

THERESA MAYER, Rank among the Tlingit.

R. BENNETT BEAN, The sitting height.

STANSBURY HAGAR, The solstitial page 9 of the Codex Cortesianus.

N. C. NELSON, Notes on the Stone Age in Africa.

MARSHALL H. SAVILLE, Ancient smoking pipes from the province of Esmeraldas, Ecuador, with notes on the distribution of pipes in South America.

ELSIE CLEWS PARSONS, The Pecos immigration to Jemez.

RACHAEL W. LOTHROP, Notes on the archaeology of Porto Rico.

S. J. GUERNSEY, The post-Basket-maker Culture of northern Arizona.

N. M. JUDD, The Pueblo Bonito Expedition of the National Geographic Society.

GEORGE H. PEPPER, Copper objects from a burial site at Hewlett, L. I.

At the joint meeting with the American Folk-Lore Society the following papers were presented:

ELSIE CLEWS PARSONS, The scalp-dance at Zufi in 1921.

RUTH BENEDICT, The vision in Plains culture.

HELEN H. ROBERTS, New phases in the study of primitive music.

C. W. BISHOP, The ritual bullfight and its connection with the growing of irrigated rice.

ESTHER SCHIFF, The deer hunt in the Southwest.

T. T. WATERMAN, The Shaker religion of Puget Sound.

GLADYS REICHARD, Complexity of rhythm in primitive art.

At the joint meeting with the Maya Society the following papers were presented:

WILLIAM E. GATES, Activities of the members of the Maya Society during 1921 and plans for 1922.

S. K. LOTHROP, The first occurrence of the word Maya.

S. G. MORLEY, The earliest historical Maya dates.

M. H. SAVILLE, The discovery of the east coast of Yucatan by Juan de Grijalva in 1518.

WILSON POPENOE, Regional differences as shown by the motives in huipil decoration in the highlands of Guatemala.

WILLIAM E. GATES, Probable nomenclature of the higher Maya time periods.

H. J. SPINDEN, The organization and progress of the work on the cenote collection.

C. E. GUTHÈ, The past season's work at Tayasal, Peten.

A. V. KIDDER,

Secretary.

ANTHROPOLOGICAL NOTES

EMILE CARTAILHAC

PROFESSOR EMILE CARTAILHAC of Toulouse died at Geneva on November 25, 1921, at the age of seventy-six years. He had gone to Geneva only a few days before as the guest of Professor Eugene Pittard and to deliver a public lecture at the university. The lecture was so well received that Professor Cartailhac was invited to remain



EMILE CARTAILHAC

(Born at Marseilles, Feb. 15, 1845; died at Geneva, Nov. 25, 1921)

and deliver additional lectures. While preparing for the second lecture, he suffered a stroke from which he never regained consciousness. After appropriate funeral services conducted by the university, the burial took place at the family seat at Camarès (Aveyron).

In Professor Cartailhac the science of prehistoric archaeology has lost one of its ablest exponents. He possessed to an unusual

degree a happy combination of the elements which make for success alike in the study and in the field. This combination also fitted him admirably for his duties as curator in two museums, Saint-Remo and the Museum d'Histoire Naturelle. Cartailhac loved his caves and no one knew them more thoroughly; but he also recognized the importance of an ample and well-ordered library, and of museum collections properly displayed. He could show a book, a specimen, a prehistoric station with a zest that captivated any beholder.

As a lecturer in his chosen field Cartailhac had few equals and never lacked opportunity to exercise his talent in this respect, even to the last. In addition to his Geneva engagement, he was to have lectured later in the winter at the Institut de Paléontologie Humaine, Paris. In the meantime he was giving his usual courses in anthropology at the University of Toulouse, which were always largely attended.

As an explorer of caverns and other prehistoric sites he had accomplished a prodigious amount of work. The more difficult the task, either mentally or physically, the more attraction it had for him. During the last few years of his life he penetrated the cavern of Trois-Frères through all its ramifications, on at least three occasions. Only those who have attempted the same feat even once can appreciate what this means; for Trois-Frères is one of the most difficult caverns imaginable.

As a member of the Commission des Monuments Classés (section of prehistoric monuments) under the Ministère de l'Instruction Publique et des Beaux-Arts, Cartailhac was instrumental in developing and directing the movement for the preservation of prehistoric monuments. He took the lead in setting aside as national monuments some of the important caves made known through his own researches and publications, such for example as Niaux in Ariège, Gargas in Hautes-Pyrénées, and Marsoulas in Haute-Garonne.

Cartailhac was not without honor both at home and abroad. He was a Correspondent of the Institut de France, President of the Société du Midi de la France, member and former president of various academies and learned societies of Toulouse, Doctor *honoris causa* of the University of Oxford, Officier de la Légion d'Honneur, Officier d'Instruction Publique and honorary member of various scientific societies, both French and foreign, including the American Anthropological Association.

As author, joint author, and editor, Cartailhac has left an enviable record. His principal works are listed in the following partial

BIBLIOGRAPHY

AUTHOR

1. L'Age de la pierre dans les souvenirs et superstitions populaires, Paris, 1877.
2. Ages préhistoriques de l'Espagne et de Portugal, Paris, 1886.
3. La France préhistorique, Paris, 1889.
4. Numerous articles in *L'Anthropologie* and other periodicals.

JOINT AUTHOR

1. E. Massenat, Ph. Lalande, et Cartailhac. Decouverte d'un squelette humain de l'age du renne à Laugerie-Basse (Dordogne), Paris, 1872.
2. Cartailhac et M. Boule. La grotte de Reilhac, Lyon, 1889.
3. Cartailhac et H. Breuil. La caverne d'Altamira à Santillane près Santander (Espagne). Peintures et gravures murales des cavernes paléolithiques, Monaco, 1906.
4. L. de Villeneuve, M. Boule, R. Verneau, et Cartailhac. Les grottes de Grimaldi, 2 volumes (Vol. II), Monaco, 1906.

EDITOR

1. Matériaux pour l'histoire primitive et naturelle de l'homme, Paris, 1869-1888 (18 volumes).
2. Dictionnaire archéologique de la Gaule, Epoque Celtique, L to S, Paris, 1919-1921.

EXPEDITIONS OF THE FIELD MUSEUM OF NATURAL HISTORY IN 1922

THE Field Museum of Natural History of Chicago is resuming active field-work in many parts of the world this year.

Through the generosity of Mr. Arthur B. Jones, one of the trustees of the institution, an anthropological expedition was to be sent out to the Malay Peninsula and the Dutch East Indies in June. The Museum has already carried on extensive work in China, Tibet, the Philippines, and Melanesia; and it is anticipated that the results of this expedition will serve as connecting links between these fields, and will throw new light on the early history and peopling of the Pacific. The Malayan expedition is headed by Dr. Fay-Cooper Cole, who has already spent four years among the pagan tribes of the Philippines. He proposes to begin his work among the more primitive tribes of the Malay Peninsula, thence proceed to the advanced peoples of central Sumatra and Java, and finally to penetrate into the little known interior regions of Borneo.

Dr. J. A. Mason, on the staff of the Museum, will inaugurate ethnological and archaeological researches on the Isthmus of Panama

and concentrate his main efforts on an archaeological investigation of Colombia in South America, practically still unexplored.

Mr. Charles L. Owen is planning to continue and complete the work of the Museum so hopefully begun in the Southwest of the United States and to conduct excavations in the Colorado Desert in southern California.

Dr. B. Laufer, Curator of the Department of Anthropology, expects to return to China toward the end of the year for the purpose of studying the aboriginal tribes of the island of Hai-nan, making an archaeological survey of the Province of Fu-kien and Manchuria, rounding out and enlarging the Chinese collections of the Museum.

THE ANGRAND PRIZE IN AMERICAN ETHNOLOGY AND ARCHAEOLOGY

The following announcement has been made by the Bibliothèque nationale of France:

Le prix de 5,000 francs fondé par M. Angrand sera décerné en 1923 au meilleur ouvrage qui aura été publié en France ou à l'étranger pendant les années 1918-1922 sur l'Histoire, l'Ethnographie, l'Archéologie ou la Linguistique des races indigènes de l'Amérique, antérieurement à l'arrivée de Christophe Colomb.

Les auteurs qui désireront concourir devront remettre ou envoyer franco dix exemplaires de leurs ouvrages au Secrétariat de la Bibliothèque nationale avant le 1^{er} janvier 1923.

A ces ouvrages pourront s'ajouter ceux que des membres du jury croiront devoir évoquer comme susceptibles de prendre part au concours.

Le jury se réunira au commencement du mois de janvier 1923 pour arrêter la liste des ouvrages admis à concourir.

Communication de cette liste sera donnée aux membres du jury ne résidant pas à Paris, avec invitation de désigner avant le 15 février 1923 les ouvrages qui leur paraîtraient de nature à pouvoir être évoqués.

Deux exemplaires des ouvrages évoqués devront être mis à la disposition du jury.

Conformément aux volontés du fondateur, le jury chargé de décerner le prix se composera de 18 membres, savoir:

1° L'Administrateur général et les conservateurs en chef des quatre départements de la Bibliothèque nationale, qui formeront un comité permanent;

2° Quatre membres de l'Académie des inscriptions et belles-lettres, désignés par le comité permanent;

3° Deux membres de la Société de Géographie de Paris et deux membres de la Société d'Anthropologie de Paris, désignés respectivement par les bureaux de ces deux sociétés;

4° Cinq étrangers désignés par le comité permanent et choisis hors de France parmi les savants les plus autorisés des deux mondes et particulièrement parmi les membres des bureaux des Sociétés de Géographie et d'Anthropologie.

Le prix ne pourra être partagé.

Il ne pourra être décerné qu'à un ouvrage ayant réuni au moins dix suffrages.

Les cinq membres étrangers pourront émettre leur vote par correspondance.

Les ouvrages des membres du Jury ne seront pas admis au concours.

THE Abbé Breuil is reported as accepting Mr. Reid Moir's flints from the Cromer Forest Bed and the Crag as artifacts and "as indubitable evidence for the existence of Man in the Pliocene Age." The number, regularity and position of the chippings are said to "preclude the possibility of any agency other than purposive human action." (*Man*, 1922, p. 48.)

In a recent communication to the *Revue anthropologique* (1922, p. 63 f.) Dr. K. Stolyhwo mentions the following savants as occupants of anthropological chairs at Polish Universities: Jan Czekanowski, Lwow; Jozef Kostrewski, Poznanie; Julian Talko-Hryncewicz, Cracow; Kazimierz Stolyhwo, Warsaw.

PROFESSOR W. SCHMIDT, the editor of *Anthropos*, gave two courses at the University of Vienna during the winter semester 1921-1922—one on the beginnings of social development, and another on the history and methods of ethnology. In Berlin Professor von Luschan lectured on physical anthropology and the anthropology of the Mediterranean countries, Dr. K. Preuss on the religion of the ancient Mexicans, Dr. M. Schmidt on the peoples of South America, Dr. W. Lehmann on the calendric systems of Central America and the relations of pre-Columbian America to the Old World. At Bonn Dr. F. Graebner dealt with types of language and politico-social problems from the point of view of culture history. In Halle Dr. R. Thurnwald offered courses on primitive religion and art. At Leipzig Professor K. Weule lectured on the origin and prehistory of man and on Asiatic ethnography, while Dr. F. Krause treated the ethnography and archaeology of Mexico and Central America. Professor R. Martin of Munich, besides a general course in physical anthropology, lectured on the races of Austria. In Tübingen Dr. A. Kraemer offered courses in Asiatic ethnography and Samoan linguistics and history. (*Petermanns Mitteilungen*, 1921, pp. 260-262.)

A letter from Father Wilhelm Koppers, (Associate Editor of *Anthropos*) dated Remolino, Tierra del Fuego, Jan. 23, 1922, indicates that he and Sr. Martin Gusinde of the Santiago Museum have been successfully studying the Yamana Indians from an ethnographic and linguistic point of view. Whether their researches will be extended to the Ona and Alakaluf, will depend on conditions encountered.

CARL LUMHOLTZ, born in Norway in 1851, formerly engaged in anthropological exploration and research for the American Museum of Natural History in New York, and other institutions, died at Saranac Lake, N. Y., at the beginning of May.

DR. CHARLES PEABODY sailed for France on the last day of May to take up his work as Director of the American School in France of Prehistoric Study.

MR. A. I. HALLOWELL has been appointed to a Fellowship in Anthropology at the University of Pennsylvania for the present year. His field of research is to be chiefly in Algonkian.

DR. W. H. R. RIVERS, of the University of Cambridge, well-known to all American ethnologists but particularly to students of primitive social organization, died on June 4, at the age of fifty-eight.

MR. HARLAN I. SMITH is spending the summer at Bella Coola, British Columbia, continuing his investigations of the Bella Coola Indians for the Victoria Memorial Museum (the national museum of Canada).

DRS. WALTER HOUGH and ALEŠ HRDLÍČKA of the United States National Museum have been appointed delegates to represent the Smithsonian Institution and by the State Department to represent the United States at the coming session of the International Congress of Americanists at Rio de Janeiro, August 20-30. They will also represent the Institution at the International Congress on the History of America which meets at the same place on September 7.

DR. WILLIAM C. FARABEE, Curator of the American Section of the University Museum, Philadelphia, started for Peru on February 4 for the purpose of making archaeological investigations. He expects to be absent from the Museum for a year.

MR. ROBERT BURKITT is studying the native languages, customs, and folk-lore of Guatemala for the University Museum of Philadelphia.

EMILE RIVIÈRE, well-known for his explorations of palaeolithic caves of Mentone and the south of France, died in Paris on January 25th at the age of 86 years.

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No. 2

THE COMPOSITION OF SOME ANCIENT BRONZE IN THE DAWN OF THE ART OF METALLURGY

By GEORGE BRINTON PHILLIPS

THE antiquity of bronze is still in doubt. In Babylonia, lance heads of metal date back probably to 4000 B. C., and a tablet of Entregal, King of Lagash, 3100 B. C., records "so many manas of bronze" paid for some land, but the "bronze" may have been only copper. In Egypt, the bronze red from Medun dates back to 3700 B. C., and the metal statue of Pepe I, VIth Dynasty, of hammered plates shows great knowledge of the metal worker's art. Venerable China has a claim that in the Shang Dynasty, 1783 B. C., bronze working had reached an advanced stage. Since southern China produced copper and tin in abundance and the opportunity for experimenting was good, the claim of China may be considered admissible. Egyptian tablets, however, record expeditions sent by their early kings to Sinai to obtain copper from the mines there, and tin was doubtless obtained from the Phoenician traders, who brought it from the British Isles, where it was mined 3000 years ago, and exchanged it for Egyptian products. The ancient Assyrians obtained copper from Arabia and Cyprus and tin from India and Spain, and it is quite possible that the ancient metallurgists mixed these two metals in certain proportions to obtain their alloys, although in some cases the ores themselves may have been melted together giving bronzes differing in their composition. Certain inferences may be drawn from these analyses of bronze. Egyptian bronze showed a varying composition. Where a hard cutting edge was not required lead was substituted for tin; a moderate amount of tin was used where stiffness was needed and in cast bronze where a sharp impression was necessary. Arsenic and antimony, found in certain bronze, may have had a hardening

effect and possibly represents accidental impurities in the copper ores. The lead present in some Egyptian bronze may have come from the lead mines near Laurium on the eastern coast of Greece and no doubt was substituted for the tin for economy. The Egyptians, having copper, tin and lead, could have experimented with these metals in order to obtain the best proportions for different purposes. Greek "bronze," where no special qualities were required, proved to be nearly pure copper, while in samples of real bronze the addition of tin suggests that the metallurgists knew of its importance and used it for certain purposes. The bronze from Carthage contained a rather excessive amount of tin, possibly to obtain the best cast results, and as the Phoenicians dealt in tin they had plenty of that metal. The Russian alloy of copper was not a bronze but an alloy of copper and iron, and suggested that the use of tin was unknown, or the tin very difficult to obtain; the presence of iron may have had a hardening effect which a sickle with a cutting edge would have required. The bronze celt from England suggested that, at this early period, the workers in metal may have obtained copper and tin from Cornwall and discovered the best proportions to use in making their tools and weapons. The Korean bronze seems to have been an intentional alloy of copper and tin, and the spoon showed knowledge of the metallurgist's art. The Japanese and Chinese bronze mirrors showed a certain similarity of composition: the Chinese being more ancient workers in bronze than the Japanese the latter may have imitated their proportions. The Etruscan bronze shows a familiarity with the composition of a true bronze and the Etruscans must have been extensive workers in metals from the large quantity of bronze ornaments, utensils and other objects now exhibited in the Museum at Florence.

Neither North America nor Central America seems to have had a bronze age; objects of metal found of ancient date were of native copper obtained from mines of the north and northwest and hammered into shape.

The following analyses give the composition of specimens of bronze collected by the writer in the various countries visited, with a brief description of the objects. When only a small piece

of the metal could be obtained, the use to which the bronze was put was judged from its general appearance.

ANCIENT EGYPTIAN BRONZE

No. 1. Bronze nail obtained from Dr. Flinders Petrie, discovered in his excavations at Old Memphis, Egypt, among ruins of the Palace of Apries, 26th Dynasty. The nail, which showed but little oxidation on the surface, was $1\frac{3}{4}$ inches long, tapering from $\frac{1}{2}$ inch to $\frac{1}{4}$ inch in thickness, with rounded point and no head, composition as follows:

	per cent
Copper.....	74.62
Tin.....	.88
Lead.....	21.32
Iron.....	.34
	97.16

This nail was not a true bronze, containing, as it did, only a small amount of tin, but what was called "pot metal," an alloy of copper and lead used in prehistoric times for small objects and filling weights, and it is rather surprising to find this alloy in a nail, where some rigidity was required.

The accompanying microphotograph (Fig. 7) shows the alloy of copper to be supersaturated with lead. The dark portions are lead and the lighter ones the copper alloy.

No. 2. Specimen of bronze obtained by Dr. Petrie in his excavations at the Palace of Apries, 26th Dynasty. A fragment of cast bronze, flat piece $\frac{5}{8}$ inch thick.

	Composition per cent
Copper.....	92.00
Tin.....	6.52
Lead.....	.82
Iron.....	.28
	99.62

A true bronze with minimum amount of tin. Lead and iron were probably impurities in the ore.

No. 3. Obtained from a reliable curio dealer in Egypt who

stated the specimen was found in the Pyramid of Illahun on the Fayum, 12th Dynasty.

Cast hollow handle, possibly a utensil or weapon.

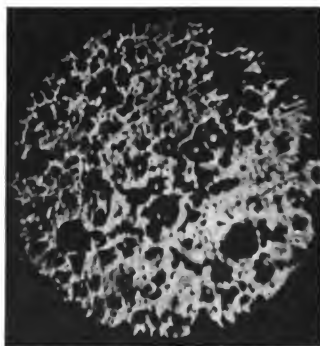
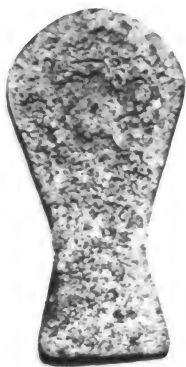


FIG. 7.—Microphotograph of "bronze" nail from the palace of Apries, Old Memphis, Egypt, containing an alloy of copper and lead; enlarged 75 diameters. (No. 1.)

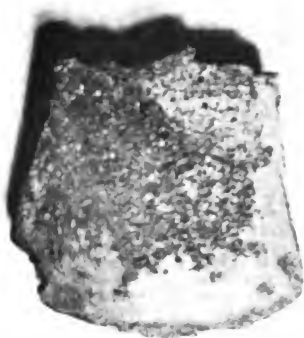
Composition	
	per cent
Copper.....	73.66
Tin.....	4.78
Lead.....	19.25
Cobalt.....	.81
Iron.....	.19
	98.69

This alloy showed an economy in tin and a large proportion of lead. The cobalt and iron were doubtless impurities in the ore.

No. 4. Obtained from Mohassib, a well informed curio dealer at Luxor. The specimen (Pl. I, a) was a small paddle shaped tool $2\frac{3}{4}$ inches long and $\frac{1}{8}$ inch thick, found at Thebes near the Ramesseum, 12th Dynasty. Surface oxidized.



a



b



c



d

ANCIENT BRONZES

a. Egyptian bronze from Thebes (No. 4 in text); b. Greek bronze ax head from Taormina, Sicily (No. 10 in text); c. Bronze celt from Pickering, England (No. 16 in text); d. Russian "bronze" handle of sickle (No. 15 in text).

Composition	
	per cent
Copper.....	88.95
Tin.....	.16
Antimony.....	.68
Arsenic.....	5.60
Lead.....	.65
Tin.....	.32
	96.36

This alloy was deficient in tin. Hardness was insured by the presence of antimony and arsenic which occur in copper ores from Cornwall, Saxony, and other localities.

No. 5. The fragment of a bronze bowl from Luxor, 11th Dynasty, obtained from the Museum in Cairo.

Composition	
	per cent
Copper.....	85.83
Tin.....	3.51
Lead.....	8.50
Iron.....	.24
	98.08

In this alloy there is an economy in tin and a substitution of lead. The thinness of the metal suggested it had been hammered out.

GREEK BRONZE

No. 6. This specimen was obtained from Dr. Stais, Director of the Museum at Athens, Greece. It was thin sheet metal probably from a bowl or vessel from Dr. Schliemann's tombs at Mycenae, date 1500 B. C.

Composition	
	per cent
Copper.....	99.38
Lead.....	.17
Arsenic.....	.19
	99.74

Almost pure copper; lead and arsenic impurities in the ore.

No. 7. A specimen of Greek bronze; same source and date

as the above. Metal $\frac{1}{8}$ inch thick, enclosed in an outer coating of metal—possibly a sword handle.

Composition	
	per cent
Copper.....	99.37
Tin.....	.10
	99.47

Nearly pure copper, the small amount of tin probably an accidental impurity.

No. 8. A fragment of Greek bronze from the Acropolis of Athens, date 520 B. C., obtained from the Museum. Cast metal, thick and of irregular shape.

Composition	
	per cent
Copper.....	88.07
Tin.....	9.66
Lead.....	.30
	98.03

True bronze, the tin present giving hardness suitable for tools or other purposes.

No. 9. Thin plate, probably a utensil, obtained from Dr. Stais of the Athens Museum, Schliemann's tombs, Mycenae.

Composition	
	per cent
Copper.....	95.63
Tin.....	.07
Iron.....	.87
Phosphorus.....	.14
	96.71

This metal, found with the bones of a burial, may have combined with the phosphorus in the bones causing an accidental impurity.

No. 10, *Greek Bronze from Taormina*. Portion of an ax head (Pl. I, b), said to date from about 600 B. C. Wedge shaped piece $\frac{1}{2}$ inch thick at back where broken off, cutting edge 3 inches across the face, which was somewhat broken and worn; the sur-

face was pitted and covered with a layer of green carbonate of copper.

Composition	
	per cent
Copper.....	90.28
Tin.....	7.31
Lead.....	.19
Zinc.....	.17
Iron.....	.48
	98.43

This specimen seemed to be a real bronze, although the presence of zinc in the alloy is unusual. Having been purchased at a curio shop, the authenticity is somewhat doubtful.

No. 11, Silver Alloy from Greece. A piece of thin silver, portion of a vase or ornament from Schliemann's tombs at Mycenae, obtained from Dr. Stais of the Athens Museum. It was covered with a scale which was detached and analyzed separately.

Composition of the Clean Metal	
	per cent
Silver.....	95.88
Copper.....	3.48
Gold.....	.43
	99.79

No. 12, Scale on Silver Alloy from Greece.

Composition of the Scale	
	per cent
Silver Chloride....	42.80
Silver Oxide.....	44.80
Copper Oxide.....	10.40
Gold.....	.40
Moisture.....	1.60
	100.00

The composition of this alloy was remarkable from the fact that it might have contained more copper without affecting its brilliancy, and the presence of sufficient gold to have made it profitable to have separated the gold from the silver had these ancient metal workers known how to "part it." This composition

suggests that they may have obtained the alloy from smelting some ores containing these metals without knowing much about the composition.

PHOENICIAN BRONZE

No. 13. A bronze mirror obtained at the Museum at Carthage, round, $3\frac{3}{4}$ inches in diameter, with no handle, differing in this respect from the Roman mirrors found at Carthage. Age uncertain, but the fact that it was greatly corroded, covered with a brown oxidation, and very brittle, suggests it might have come from the Old Punic Cemetery, the Necropolis of St. Louis, dating from about the 5th Century B. C.

Composition	
	per cent
Copper.....	82.00
Tin.....	14.36
Iron.....	.63
	96.99

Owing to the oxidation it was not possible to obtain a sample of clean metal for analysis. The proportion of tin shows an unnecessary amount of this metal.

BRONZE FROM CEYLON

No. 14. A bronze begging bowl given the writer by Dr. Joseph Pearson, Director of the Colombo Museum, unearthed at Polonnaruwa, Central Province of Ceylon, and believed to belong to the 12th Century, A. D. It was 6 inches in diameter, the bottom entirely gone; the rim was about $\frac{1}{16}$ to $\frac{1}{8}$ inch thick and had the appearance of being cast.

Composition	
	per cent
Copper.....	77.46
Tin.....	19.63
Lead.....	.19
Cobalt.....	.43
	97.71

The large amount of tin may have been given for hardness and durability; the lead and cobalt are doubtless impurities.

RUSSIAN BRONZE

No. 15. When at Moscow, a bronze sickle was taken from a case in the Imperial Museum by the Director, Prince N. Stehebatoff, and given to the writer for analysis. It was only the handle, the blade having been broken off, and was of the Siberian type from the government of Saratow, central Russia, the date being 1500 to 1700 B. C. The handle was 3 inches long, from $1\frac{3}{4}$ to $2\frac{1}{4}$ inches wide, and $\frac{1}{8}$ inch thick, reinforced with a stout iron rim on one side, and was evidently cast (Pl. I, d).

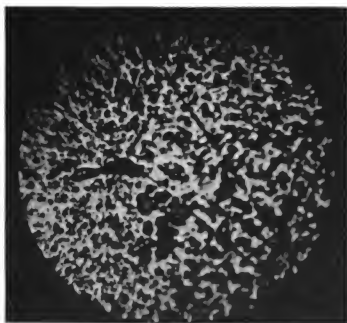


FIG. 8.—Microphotograph of Russian "bronze" sickle containing an alloy of copper and iron; enlarged 75 diameters. (No. 15.)

Composition	
	per cent
Copper.....	91.55
Iron.....	6.22
Cobalt.....	.30
	98.07

This alloy is remarkable from the fact that it contained no tin and a larger amount of iron than is found as an impurity in alloys, suggesting that the copper may have been reduced from a mixture of copper ores containing considerable iron.

The accompanying microphotograph (Fig. 8) shows the peculiar structure of this alloy.

BRONZE CELT FROM ENGLAND

No. 16. James M. Mitchelson, Esquire, of Pickering, England, unearthed, in a round barrow in the hills above the Vale of Pickering, many prehistoric relics, stone implements, incense cups, food vessels, etc., and roughly cast bronze celts, which he assigned to the early bronze period, 1800 to 1500 B. C. He was kind enough to give the writer one of these celts from his private museum for analysis.

Socketed celt, with square socket, a loop on one side but no ornamentation (Pl. I, c).

Composition	
	per cent
Copper.....	83.80
Tin.....	10.18
Lead.....	5.31
Iron.....	.41
	99.70

KOREAN BRONZE

No. 17. From the museum at Seoul, Korea, a bronze spoon was obtained, said to have come from an ancient grave at Songdo, date 900 to 1400 A. D. It was well shaped, with a curved handle like a soup ladle, and was stiff and rigid. The metal was coated with a thin patina of a pale green color, and when cleaned had a whitish red appearance.

Composition	
	per cent
Copper.....	77.25
Tin.....	21.54
Lead.....	.02
Iron.....	.70
	99.51

The amount of tin in this alloy seems excessive but was probably used to secure hardness and rigidity. Copper was mined at Kapsan, Korea, and was smelted in a "hole in the ground process" until recent times.



ANCIENT BRONZES

Above Japanese bronze mirror of the Ashi Kaga period (No. 18 in text); below Chinese bronze mirror of the period of the Ming Dynasty (No. 19 in text).

JAPANESE BRONZE

No. 18. Mirror bought at Kyoto from a reputable curio dealer, who stated the mirror was of the Ashi Kaga period, and about 600 years old, and that it had been in a fire. The mirror had a crude appearance, with no evidence of a polished surface, the back having rough figures of men and animals raised in high relief above the cast surface. (Pl. II, upper figure.)

Composition	
	per cent
Copper.....	73.20
Tin.....	10.80
Lead.....	14.50
	98.50

The per cent of tin is the usual amount in true bronze; why the large amount of lead is unknown.

CHINESE BRONZE

No. 19. Mirror (Pl. II, lower figure) obtained at Canton and probably of the Ming Dynasty, (1368-1643). The mirror had three columns of Chinese letters on the back. The reflecting surface had been polished and had a white coating, much worn away; it was examined for silver but proved to be tin. The mirror had no handle, but an ornamental edge.

Composition	
	per cent
Copper.....	65.20
Tin.....	9.72
Lead.....	23.19
	98.11

No. 20. The figure of a little elephant of rather crude workmanship, from Peking, said to have come from a temple, date uncertain, but said to be 200 years old.

Composition	
	per cent
Copper.....	56.60
Tin.....	.62
Lead.....	5.73
Zinc.....	31.99
Iron.....	4.47
	99.41

This alloy, containing but a very small quantity of tin and nearly 32 per cent of zinc, was not bronze but an ordinary brass.

BRONZE FROM ETRURIA

No. 21. A specimen of ancient bronze was obtained at Florence from the Director of the Etruscan Museum, Barlozzetti Cesare, R^o Museo Archeologico Firenze, found in one of the tombs at Populonia Piombino, date 3rd or 4th Century B. C.

The metal was very thin, evidently beaten out, and was probably some portion of a vessel or utensil.

Composition	
	per cent
Copper.....	84.28
Tin.....	10.28
Lead.....	None
Zinc.....	None
Iron.....	None
Phosphorus.....	Trace
	94.56

Owing to the specimen being very thin and covered with a green scale, it was impossible to get a fair sample. Clean metal would probably have shown a true bronze with 90 per cent copper and 10 per cent tin. The absence of any trace of iron is rather unusual in ancient bronze. The presence of a trace of phosphorus in the bronze may be accounted for when associated with an ancient burial.

BRONZE FROM YUCATAN

No. 22. A small globular-shaped bell about $\frac{5}{8}$ inch in diameter and $\frac{3}{4}$ inch long found with a number of others in a jar with inscribed characters buried in a mound near the village of Humebchin, Yucatan, yielded on analysis:

	per cent
Copper.....	97.00
Tin.....	.34
Lead.....	1.00
Iron.....	.07
	98.41

Of course this was not a true bronze; the small amount of tin, lead, and iron may be regarded as impurities in the ore. Central America, in spite of the advanced civilization of the Maya race, does not seem to have reached the Bronze Age.

BRONZE FROM CRETE

No. 23. A small fragment of bronze from Crete, so badly oxidized that no clean metal could be obtained, gave an analysis:

	per cent
Copper.....	68.44
Tin.....	13.47
Iron.....	.05
Lead.....	Trace
	81.96

The results obtained simply showed the use of tin in generous proportions in the bronze alloy.

TIBETAN BRONZE

No. 24. A curious mask-like bronze head obtained at Darjeeling, said to have come from Tibet, of no particular date. It was about four inches across the face, and had a wide-open, capacious mouth, for the purpose of preserving the ashes of a Lama, or priest. The addition of horns on the head and strange ornamentations gave it a grotesque appearance.

Composition	per cent
Copper.....	83.78
Zinc.....	15.00
Iron.....	1.30
Tin.....	None
	100.08

As this alloy contained no tin, it could not be considered a bronze, but rather an ordinary brass, and probably quite modern.

The specimen, while it claimed no interest as an alloy of copper and tin, or bronze, displayed considerable skill in the casting, and seems to have been treated so as to give it the reddish-brown appearance of a "bronze." The clean metal itself had the

reddish look of a copper and tin alloy, and not the yellow tint of a copper and zinc brass.

BRONZE FROM SOUTH AMERICA

Objects in metal of ancient manufacture in Peru show that some portions of South America at least passed through a "Bronze Age." Specimens of prehistoric bronze from Machu Picchu when analyzed gave interesting results. The analysis in a paper by Dr. C. H. Mathewson gives the following composition in percentages:

	Copper	Tin	Iron	Zinc
A. Knife.....	94.26	4.82	0.28	.....
B. ".....	96.79	3.00	None	.....
C. ".....	95.35	4.22	None	.....
D. ".....	96.79	3.00	None	.....
Chisel.....	96.20	3.71	None	.....
Ax head.....	93.70	5.01	None	.....
Ornamented spatula-shaped piece.....	86.03	13.45	.....	0.32
Irregular-shaped piece.....	95.68	4.20	.....	.....
Mirror with handle.....	94.35	5.34	.....	.....

Mr. W. A. Wesslin's analyses of bronze from South America gave the following results:

	Tin
Knives, chisels, and ax heads requiring hardness and strength....	5.00-10.00
Tools from Bolivia.....	2.00-10.00
Pins from Bolivia.....	1.00-10.00
Clamps and some other objects from Bolivia.....	little if any
Ornamental figures and bolos from Bolivia.....	nearly 10.00
Objects from Cuzco, such as knives, chisels, and ax heads.....	3.87- 8.53
Ornamental figures from Cuzco.....	1.97- 8.54
Bronze objects found in the ruins of Tiahuanaco gave	
For cutting tools.....	3.27- 7.79
For ornaments.....	1.28-10.59
(The tin in bronze cutting tools from South America seems to range from 3.00 to 8.00 per cent minimum amount, while ornamental objects contained from 8.00 to 10.00 per cent tin, a rather excessive amount.)	

The Bingham expedition of 1912 in Peru found at Machu Picchu, not only many specimens of bronze tools and implements, but a large mass of pure metallic tin, showing that the Inca metallurgists were familiar with tin and knew how to obtain it by smelt-

ing the cassiterite ore found associated with copper in the lodes in Bolivia.

When native copper could be found, and tin obtained from the easily reduced cassiterite ore, it is not surprising that experiments should have been made in melting these two metals together in different proportions, and that the Incas should have discovered that a certain amount of tin produced hardness, and the best results in casting, and that a minimum amount of tin, with forging, annealing and cold working, yielded a suitable alloy for tools. This would explain a certain uniformity of composition in tools and objects which would not be obtained by smelting ores of unknown composition, yielding a metal of a varying, accidental and uncertain nature, although it is quite probable a bronze may have been obtained by smelting together ores containing both copper and tin when the metals themselves were not obtainable.

In conclusion I desire to acknowledge the valuable assistance of Dr. D. L. Wallace of the Chemical Department of the University of Pennsylvania, who aided me in my analyses and determinations of compounds in some of the ancient bronzes. The microphotographs were made at the Laboratory of Physics of the University.

PHILADELPHIA, PA.

NEW PHASES IN THE STUDY OF PRIMITIVE MUSIC

By HELEN H. ROBERTS

WHEN we attempt to study art, or especially to describe an art to those unfamiliar with it, we find that, while it is comparatively easy to discuss colors, materials, and subjects, a brief and satisfactory characterization of its style is exceedingly difficult of accomplishment. Yet it is this very style that so completely distinguishes the work of one artist or group from that of another, much more than employment of pigments or other materials, or subjects chosen for expression. Exactly the same condition exists in music. All the arts have certain features in common, in that they are supplied at the outset by nature with certain working materials and it is quite possible that over wide areas the same or very similar elements may be encountered. But it is the way in which the artists play with the material that is furnished that gives us the styles, and it seems to me that the most important of the plays is not the selection from the mass of materials of those which the artist favors, for usually all that are available are chosen at one time or another, but the patterns or designs that the artist creates from them.

When local styles become sufficiently fashionable and fixed they form types. They may be the result of the acceptance by many of sudden departures from other types (and I think this fact is not often taken sufficiently into consideration), or they may mark the gradual accumulation of lesser divergences. This whole question of the growth of variants and the determinants of the beginnings of new styles, while recognized as important by many thoughtful students, has not, for lack of time and sufficient material from which to draw, been as yet adequately studied. Nor do we always detect the influence of religion upon art-endeavor, which has too often resulted in its marked restraint or warping, a fact not only evident in primitive arts, but even in classical arts and in that of Christianity.

Strange as it may seem, considering the prominence given by anthropologists to architecture, the plastic and graphic arts, textiles, and language, in their effort to learn of other peoples, very little systematic attention has been paid to music. Perhaps it is the most important of all the arts when it comes to revealing the history of our forerunners on this continent, since it combines direct subjective evidence of the words with the objective features of its structural designs.

In the western hemisphere most primitive music is vocal. Songs are far more important in every way as anthropological studies than instrumental music. Possibly the Indian's respect for tradition is greater than that of the American Negro, for instance, so that greater stability of songs is maintained over long periods of time. Particularly, melodic and singable tunes will survive many generations, modified, it is true, because the tendency to variation is always active, especially with people who depend solely upon memory for repetition and transmission. This variation grows with the passage of time and the number of intermediaries. So far as my experience with Indian singers goes, it has brought me to the conclusion that while a greater attempt is made to reproduce the songs exactly, and they are on the whole valued more highly than with the Negro, nevertheless there is still considerable tendency toward variation. Beyond the Indian field, even in cases where the variation is great, as with the Negroes, a song long retains enough of its identity to be recognized because of its larger stylistic features, or perhaps its more marked ones.

In song and ritual are hidden archaic forms of language, which may have been obsolete for centuries in the spoken tongue. Where, but in song, ritual, or tales would we find expression of the innermost thoughts of the people, inadvertent references to the minute details of daily life, the expression of religious beliefs, preserved in a form which is more or less stable throughout long periods, combined as in song with an art form which may afford material for comparative purposes?

We may observe the effect of music upon language and vice versa, if we also know the spoken tongue, and where the music has attained something of a formal character because it is appre-

ciated for its own sake, interactions between the two within the songs themselves afford very interesting study. At times the music is woven almost inextricably with the texts, and seems a direct intoned expression of the thought, but quite as often it reveals an appreciation on the part of the composer of its own artistic value and has been developed on its own account. One of the chief values of a study of primitive music lies in the fact that, at least in central North America, it accompanies practically every activity of any significance. Whatever phase of the life of the people we choose to study, we find additional light through the songs which have come to be associated with it. If we would learn of origins, growth, and change in the various institutions as well as their journeying from region to region, we have in the songs not the least useful of our evidence. Any tune is sufficiently complicated to preclude the likelihood of its having been invented twice, especially since the limits of possibility in musical invention are so great, and where instruments play so insignificant a rôle as they do in North America. It is easy to see that instruments of limited range, if used constantly for accompaniments, might affect the development of song.

In Indian music we may observe a great medium of human expression through an utterly different world of thought. From the standpoint of design and structure, as well as of melodic combinations and rhythms, it is in conception markedly and refreshingly different from our own, steeped as it is in rules and precepts so respected, in forms so stilted, or tonal groups so monotonous, that it was not until comparatively recently that composers who infringed the laws laid down by the classicists were accorded more than derision and scorn. Here we must accustom ourselves to new forms and tonal groups, to irregular metres, depending directly upon the accents of the word phrases, as a rule, and thus so simple and natural that we are amazed that we have not seen the beauty of the irregularities before. But the Indians also have rules and canons for certain types of songs, although they may follow them more instinctively than rationally. Not seldom for these the music follows characteristic lines, partly due to the structure of the ritual poetry, and

perhaps these musical types have the most important value for us of any when we are tracing the history of different activities, ceremonies, religious societies and the like.

Miscellaneous songs afford the poorest means of tracing contact because they have usually been inspired by single occasions which have no appeal to others than those actually participating and because they are usually individually, not tribally, owned. They are apt to be borrowed singly, by single individuals, and may become easily lost or difficult of discovery in new surroundings where a collector might not readily divine the circumstances necessary to call them to memory. On the other hand these little single melodies often have great individual charm and are direct expressions of the small incidents in daily life.

Songs which are the property of religious or medicine societies, and which form ritual groups and are sung in their entire cycle with each recurring season or meeting, are always regarded as important by the people themselves, are carefully remembered, and are very often similar in general outline for a given ceremony, in a way which the people themselves recognize even if they do not analyze clearly. Owing to the fact that most tribes have ceremonies which find more or less rough correspondents among other tribes it is easier to find what these are and to draw comparisons between their songs than with miscellaneous songs. Because of a conventional and even holy character, there are likely to be fewer changes in the successive renditions, while an almost universal custom in performing rituals, which consists in much repetition with variation only on significant phrases which mark the steps of the ritual, serves to fix more firmly in mind the form in which the ritual is cast, both as regards tune and words, rendering detection of error in performance more likely. Thus, by means of individual melodies, but, better still, by means of the stylistic features of groups of songs, we may be able to follow the histories of innumerable practices which in tribal life have songs associated with them. Already steps have been made in this direction, limited, it is true, because the collections so far assembled and transcribed are generally of such different types of songs that not many comparable groups are available for study.

We do not perceive the smaller differences in song, however, either in local or tribal types, such as those which characterize different ceremonies, unless they are revealed by analytical study, partly because of the strangeness of the music to our ears, partly because of the subtlety of the art itself, its movement, and its evanescent character. The mechanical means of fixing music were invented rather late in its history in Europe and not at all in many parts of the world, while even now when we have a notation and phonographic records which to a degree permit of audible fixation, to appreciate not only its form but its beauty involves progression and a continual comparison by means of association and memory.

Not only is it difficult to seize upon and designate the peculiarities which distinguish certain types, upon hearing the song, but in reading over the notation they are not all equally clear to a musician, who must needs reduce the music to some simple formulae covering the structure, etc., in order to have them clearly in mind. Such a reduction is even more necessary for those whose unfamiliarity with the symbolism of printed music renders the subject still more complex. For the sake of obtaining the bald outline of the tune and the design which it formed, structurally, it seemed best for the time being in analyzing given songs to eliminate key signatures, musical notes, with their different values, all pitches less than whole step intervals, all measure bars and accents, all expression marks, in fact everything that might be considered to belong to the realm of color in music, much as one might omit questions of technique, color, materials, in basketry, painting, textiles, or pottery in order to see the outline of the decorative designs which cover the surface, only in this instance the designs are the structure itself, the form of the object.

This was accomplished by plotting the tunes on quadrille paper, somewhat after the manner followed by Miss Densmore in her "Teton Sioux Music." The writer received the suggestion from reading her book, but whereas in that study Miss Densmore was interested solely in the trend of the melody, its form of beginning and ending, for which it was sufficient to plot only the first note

of every measure, in the present instance the same device has been made to show the duplication of parts with the aid of letters, their recurrence in different sections of the melody (at times on different octaves with the aid of heavily ruled lines for tonics) as they would be designated in our music. Every beat is represented by a vertical line of the quadrille paper, and except for rests a dot has been placed on the appropriate horizontal line according to the note occurring on the beat in question. No use is made of spaces as in music, but every horizontal line represents a diatonic scale tone, and every eighth one is heavily ruled to represent the tonic. Thus for musicians at least the relation of the tune as a whole to this tonic indicates at once whether it is major or minor in tonality. By means of the plot the tune is reduced to the barest possible outline, and instead of requiring careful reading from beginning to end, as in music, shows at a glance the structure and general plan. The advantages of this quick survey are of inestimable value when comparing large numbers of songs. Letters have been used to mark off the different musical phrases, so that the student need not even stop to see where new phrases begin; in fact, this would not be easily apparent without them. Once the plots are made it does not need a musician to understand the plans of the songs and to see points of similarity and difference in their structure.

One instance of an attempt to study groups of ceremonial songs by means of their structural and stylistic features has already given some interesting results. Having analyzed the songs for a large group of ceremonies belonging to the tremendous Creation Ritual of the Pawnee, the writer discovered that what her Indian informant naïvely expressed as a "different voice" for the songs of each ceremony actually existed to a degree. In a number of cases the groups did conform to a rather well-defined pattern or design of composition, and certain peculiar stylistic features which are hard to describe off-hand gave them on the whole a similarity in sound which made it easy for one who had ever heard enough of them to become acquainted with the style, to recognize one of the type, even if not familiar with it as a specimen.

A few examples will illustrate these differences in structure as

well as the usefulness of the plot for this comparative work. Not all of the ceremonies are differentiated by completely individual types of songs and not one is lacking in examples of songs which are untrue to type and which have even been taken in theme from the songs of other ceremonies, but for some of the groups one type predominates which becomes fairly distinctive.

Skull Bundle Ceremony. (Pawnee.)

$\text{♩} = 100$ A B

a b a c
U ra u ka tit wi ta si ka ra u | U

B

d a c d
ra ru ka tit wi ta si ka ra u | A wa ri ka tit

A CODA.

a c d f e
ra si ka ra u | A wa ri ka tit ra si ka ra u

In the earlier ceremonies, which are by tradition the oldest of the group, no well-defined types are found. In the Skull Bundle Ceremony, however, the songs are mostly very simple and of fairly limited range. The ceremony is very much older and more sacred than the White Beaver which has a very clearly defined type of song. Age shows, I think, in the very archaic character of the tune given here. A measure analysis is inserted under the notes, consisting of letters which change with the motifs used. The frequent recurrence of the same letters shows how often the same little melodic ideas are employed. The Skull Bundle songs are a miscellaneous collection from remote antiquity. The example given above is merely by way of contrast with some of the songs of the later ceremonies.

It is at once apparent how the plot given below clarifies the structure of even so simple a melody as this. Here are revealed

three identical portions preceded and followed by short sections which may be called either A and coda, or Introduction and coda. The ascending ending on the second degree of the scale is easily seen, and the general placement of the melody in relation to the tonic or key-note. There are several Skull Bundle songs with ascending ends, and throughout the ceremonies there are quite a number more, which fact might be observed by those who like to insist that Indian songs always descend in trend and drop at the end.

Fig. 9 gives the plot of the above melody.

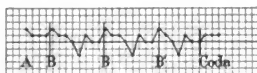


FIG. 9.

The Morning Star Ceremony is another very old and sacred ritual and, like the Skull Bundle ritual, is composed of songs of

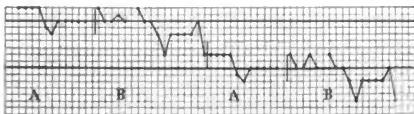


FIG. 10.

more than one structural type. One like that shown in the plot (Fig. 10) is very prevalent, however; in fact so much so that it may be said to characterize the songs of the ceremony. It is what I have called the "octave type" because we have a melodic theme which is reproduced on the octave below, and, if the song begins high enough and the singer's range will permit, is repeated a second time on the second octave below. Necessarily, the two factors of initial pitch and singer's range influence the structural features to some degree, but do not control those that enter into the original part on the highest octave. Octave structures are found in two or three of the other ceremonies but so rarely that they are plainly not typical of them, whereas in the Morning Star Ceremony they furnish the great majority.

Another type found in the same ceremony reminds us of the Skull Bundle songs except that it is possibly a bit more complicated (Fig. 11).

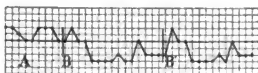


FIG. 11.

White Beaver Ceremony. (Pawnee.)

Sung by Good Buffalo, No. 6 North. First Ceremony, Second Song.

♩ 116 A

a
Ars ku ru rey ti wa ka ri b
Wey ro ru a ta

CHORUS.
b'
Ars ku ru ti hu ra ru ri b''
Wey ra ru a ta a a

B
c
Hi ru ra ru a ta ri d
Wey ra ru a ta a a

e
Wey hey ra ru u ta f
i i a i i a

This White Beaver song, from the ceremony of the same name in the Pawnee Creation ritual, written out in full notation and accompanied by its musical analysis, will give an idea of the peculiar structure of the songs of this group and likewise show the advantage of the plot device in rendering it visible at a

glance. As far as the repeat marks, or to the double bar at the end, we have the verse proper, which consists of two sections, A and B, of four measures each, quite regular and correct from the standpoint of European standards. But part of the song is repeated for the chorus, as the informant called it. For this the return is not made to some natural division in the music such as at the beginning of the A or B phrases, but to the last part of the A phrase, after which little introduction the B phrase is repeated entire.

This peculiarity in the formation of the chorus appears in some form or other in practically all of the forty-eight White Beaver songs, depending on the composition of the verse proper. A number of variations in the manner of introducing the chorus are found,

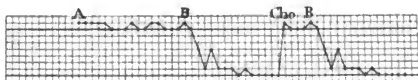


FIG. 12.

such as taking for the measure or so, which serve as introduction, material from some other part of the A phrase, from the first part of the B phrase, after which it is given in full, or by substituting new material, and so on. At times the chorus is introduced directly without the intervening connective. But these occasions are comparatively rare. Usually there is a return on beginning the chorus, to the middle of some phrase. Another peculiarity is the long level ending at the close of verse and chorus, and the great skip between the end of the verse proper and the opening of the chorus. There are several other minor features which are fairly characteristic of this group of songs, such as the play between the second degree and the tonic, and the two little rebounds in the melody after the first big drop in the verse and again in the chorus.

The plot (Fig. 12) makes the whole structure evident at a glance. It is given in full, whereas the music for the chorus is indicated by repeat marks.

The songs for the remaining ceremonies of the ritual are more or less like the White Beaver in general plan and seem to have been taken from this ceremony as a pattern.

It was quite by accident that, in turning the pages of Miss Densmore's "Teton Sioux Music" during the time that the Pawnee songs were being studied, the writer recognized in the plots of a few songs that Miss Densmore had given some that show the very design that pervades the songs of the White Beaver Ceremony and which is so peculiar in itself that it had been a source of more than casual speculation and study. This structural type is by no means common and considering the number of types that do exist and the fact that the range of possibility in



FIG. 13.

musical design and structure is almost unlimited it seems very significant that these two identical patterns should be found in the ceremonial songs of two medicine societies which belong to tribes of different linguistic stocks. It at least throws in more favorable light the proud boast made long ago by our Pawnee informant that the Sioux derived the idea of their medicine societies from the Pawnee. Had the writer been glancing through the music of both ceremonies in the same casual way in which she observed the plots, she might have felt that she had heard something similar before, but recognition would not have occurred as promptly, if at all, without the analyses and the plots as identification, especially as the actual melodies which conform to this structure are often quite distinct.

The above plot of one of Miss Densmore's songs (Fig. 13) represents a Buffalo Medicine song.¹ Not all of the group which Miss Densmore gives follow this pattern, and it is probable that in any ceremony there are exceptions, but this type, more or less modified,

¹ Frances Densmore: *Teton Sioux Music* (Bull. 61 Bur. Am. Ethnol.), p. 250, song 80.

is characteristic of the majority. There is one small difference between them and the Pawnee songs. In repeating for the chorus the Pawnee songs usually return at once to the highest note and this is usually the same as the first note of the song. In the Sioux there is an intervening note which serves as a step between the lowest and highest notes which would otherwise be separated by a great interval, but, since this lower note is also present in the A section, the principle of returning to the middle of the A phrase for the chorus remains unbroken. The introduction to the chorus, as I call it, is in the Sioux examples proportionately a little longer.

Probably enough examples have been given to illustrate the points that I have been trying to make, namely, that our study of Indian music must not be confined to the smaller details of artistic endeavor but must include the larger underlying plan to which these are attached as color elements or surface decoration, if the simile is permissible. The plots, in ridding us of the mass of confusing detail that obscures this plan and best of all in eliminating the musical symbols which are even now a great hindrance to clear understanding on the part of many people, will fill a long-felt want in furnishing a quick means of comparison and at the same time enable us to see the pattern without the progressive reading that is necessary with musical notation.

It is not claimed that the analysis of music from the formal side is the only one which counts in the characterization of style. It is quite as important to look for characteristic rhythms, scales, intervals, ways of beginning and ending, etc., as it was before. Color styles are quite as important as structural styles, but not more so. And never should the latter have been so completely overlooked by the students of primitive music as they seem to have been.

The principle of musical analysis that precedes the graphic presentation of it by means of the plot is employed by students of classical composition everywhere. There is nothing new in the division of a composition into motifs, sections, phrases, sentences, etc., but strangely enough students who have hitherto examined Indian music have never, apparently, worked at it from this angle, either failing entirely to see it, or sensing it only vaguely, unless,

indeed, they have taken it for granted that it would be patent to every reader; to which I offer the opposite opinion that it would not be evident even to musicians without a little study, since it can not readily be perceived in the process of progressive reading or hearing, while the non-musical reader would not perceive it at all. In my own work hitherto, the musical notation has been the chief difficulty in the way of presenting the subject in a manner intelligible to the average reader, even with the aid of phrase lettering. The plot removes this once and for all.

In concentrating solely on such problems as off-pitch singing, tonality, weak or strong beginnings, rhythms, size and frequency of intervals, tonics, high and low beginnings and endings, etc., it seems to me that students have failed to see the forest for the trees. Especially is this the case with off-pitch singing which is subject to so many almost unmeasurable conditions that it seems doubtful if we shall ever be able to deduce any laws concerning it. When we realize that many of the songs which are the material for our study are taken from old people who are supposed to know the songs best, but who also at the same time have the poorest pitch control, and when we think of the enormities committed in the direction of off-pitch singing among our own trained singers who should know better, the difficulty of the whole question begins to be apparent. There has been no attempt to measure the conditions under which the singing of the songs occurred which we accept as material, nor the variations that would occur in several renditions by the same and different singers, as well as the limits of ability to identify fine pitch differences on the part of the transcriber. On the whole the importance of the question of off-pitch singing seems to me to be much over-rated particularly in music where instruments are rare.

Many of the other points that have been investigated are, by their very nature, common over large areas, and those like rhythms begin to be important for our purpose only in the more complex combinations. The entire rhythm of a song, on the other hand, is so complex that it is practically never duplicated in another tune, as the following experiment will prove. One has but to tap out the note values of any song that others are apt to know to find

how readily the tune is recognized by those who have a reasonable rhythmic sense, even though there is no melody present. The melody alone, without its own rhythm, may be easily passed by, although very familiar, if given with absolute time regularity. But, if plotted, its similarity to other melodies constructed along the same lines will be at once apparent.

Investigation indicates that a tendency toward structural patterns does exist, especially in ceremonial songs, just as it does in totemic complexes, social organization, religious societies, graphic art, architecture, etc., and varies all the way from extremely simple combinations to very complex structures of design within design as in one of the Pawnee songs where there is chorus within chours. Just how extended this tendency is remains for future study to disclose, but the mapping of it and the use of it for comparative purposes certainly seems worth the effort. The results cannot be predicted at the present time, but there seems to be no reason why the principle of structure in music should not offer as certain a means of identifying different groups as the corresponding situation does in basketry, pottery, textiles, or any other phase of culture.

It seems advisable before closing this paper to make a few remarks on Indian music in general in response to repeated inquiries whether it were not possible to characterize it in some way. Some persons of considerable musical standing have, without any very profound knowledge of it, condemned it utterly as hideously lacking in melody, form, and variety. Only those who will take the trouble to study it can know of its often very beautiful melody, its surprisingly intricate forms, unappreciated by most of us because we are so fettered by the traditions, rules, and regulations of an art which with us came near falling into a rut. One of the features most enjoyed by those whose long acquaintance with Indian music makes it possible not to feel lost at every change of interval relationship (or key as we know it) or at constant shifts in metre which nevertheless combine themselves into form, is this remarkable freedom of expression.

When we consider that there are nine great culture areas in North America as they have been mapped out by students of the

subject, and that in each there are many local centers of style and structure for basketry, pottery, textiles, forms of dwellings, and so on, and when we recall the number of distinct linguistic stocks, is it fair to demand that the music of all shall be crowded, whether it will or no, into one great generalization? Asked to do this of graphic art, textiles, or languages, the anthropologist would stand aghast. So far as investigations have been made, they have hardly extended beyond the confines of single tribes scattered here and there. No systematic effort has been made to completely survey the music of an entire culture area, much less to compare that of each of the areas one with another, and from this comparison to draw a general conclusion. The work has so far been too vast and the points about the music which have been taken for discussion too numerous and dissimilar with different students.

More often the studies have been confined to certain types of songs within a given tribe, and not to a general presentation of the music, and naturally the first condition should precede the latter. There are some notable examples of the thorough musical canvass of certain tribes, such as Miss Densmore's Chippewa and Teton Sioux music, Miss Fletcher's Omaha, and Gilman's and Miss Curtis's work among the Hopi. But even with these there is still not enough for generalizations that might be taken as final. Burton has attempted a few, and I shall largely be repeating what he says, but I can not agree with his point of view that Indian music as yet is unformed and if left to itself would eventually have worked its way into the condition of European music, with its even, two-and-two balancing of phrases, its stilted forms, and its harmony. Indian music is unformed only as is any living thing which still has time to grow.

That Indian music would have evolved along the same paths as other music is an unjustifiable assumption—quite as much so as to say that the languages with constructions which reveal an entirely different way of looking at things would necessarily come to such a complete overthrow of systems as would be inevitable in order to arrive at the *modus operandi* of the great Indo-European language system.

Sounds, accents, and rhythms may, by their very nature, be

more or less common property the world over, but it is their combinations into structures that are individual.

First of all it may be noted that as far as investigations have gone we have found Indian music to be practically monophonic, even the choruses being sung in unison by men and women if we disregard the octave factor existing between their voice ranges. There seem to be more songs in major than in minor, and they are most of them quite short and contain very few ideas, poetically or musically, but these few are often elaborated in quite intricate ways, showing an appreciation for extensions, contractions, inversions, and other devices known to European music, although in some Indian areas they are very little employed. The songs vary from the simplest structures to those which are quite complex, and some tribes are markedly poorer musically than others. The music of all of them has this feature in common with that of primitive peoples all over the world: instead of new ideas being developed and added to others to make longer compositions, recourse is had to numerous repetitions of a few short themes.

As has already been said, there is great freedom of expression which excels any that is known to European and American music except within the last decade or so. It is rare that songs of perfect metric regularity are encountered or phrase balancing such as classical rules have prescribed. We might describe it as a music where there are no rules, except that the songs of a certain ceremony have a tendency to follow the same structural idea.

It should always be remembered that composing songs is a general practice among Indians. It is not confined to a few specially gifted members of a tribe. Everyone sings and has his own songs, although some are recognized as being better composers and performers than others. That all the individuals who add their efforts to the tribal output should be equally gifted not only with pitch discrimination but with musical taste one could not for a moment suppose. Such a demand would be rather heavy on ourselves. That is why in the vast mass of material that is collected the real gems are comparatively rare. The same condition would be found with ourselves even if we collected only from professional musicians.

Nevertheless, huge as is the task of collecting and sorting; slow, painstaking, and tedious as it must be if it is to be done scientifically and correctly, the doing of it not only achieves the ends outlined at the beginning of this paper, but enlarges our vision and enables us to see the real contribution the Indian has made in this field.

NEW YORK CITY.

THE ETHNOLOGICAL AND LINGUISTIC POSITION OF THE TACANA INDIANS OF BOLIVIA

By RUDOLPH SCHULLER

AS I HAVE stated elsewhere¹ far northwestern Bolivia is, ethnologically speaking, one of the most interesting sections of South America, yet no corner of that continent is so little known as the regions north of the river Tuiche. Great confusion exists as to the linguistic and ethnological affinity of the aboriginal tribes inhabiting the territories referred to. Of course, it would be impossible, within the limits of a brief paper, to discuss the different classifications which have heretofore been proposed by other American ethnologists.

The fishing and hunting tribes of the "montaña" of Bolivia and Peru have never been treated as a whole. We know little as to their myths, legends, and social organization. In most of the works which refer to these Indians, there are to be found very meagre data respecting the physical habitus of the aborigines, the manner in which they built their dwellings, their industries, the customs observed in the initiation ceremonies, their marriage customs, their music and dances, their religious belief and ceremonies, their mortuary rites, etc. And in addition to this, the literature dealing with these matters, generally, is widely scattered, and very often difficult of access.

With respect to the languages, we possess several vocabularies with short grammatical sketches of the Tacana proper and the Cavineña dialect. Texts have never been gathered. Therefore the linguistic material utilized in this paper must necessarily be limited in extent. In writing this article, I have aimed at presenting, within a moderate compass, a clear picture

¹ Moseteno Vocabulary and Treatises, Evanston and Chicago, 1917, p. xxiv.

of the ethnological and linguistic position of the Tacana speaking tribes.

To the branch which I here propose to name the "Tacana Linguistic Group," belong the following tribes, but most of those belonging to the Tacana group proper are now extinct.

*Pamaino ²	*Tšiliuva ³
*Aguatšile ²	Tacana proper
*Utšupiamona ³	Cavina or Cavineña ⁶
*Pasaramona ³	Araona ⁶
*Saparuna ²	Toromona ⁶
*Huawayana ²	Maropa ⁶
*Marcani ⁴	Sapibocona ⁷
*Guariza ⁵	

These tribes were, and some of them still continue to be, the lords of the virgin forest regions situated between the lower eastern slopes of the Andes and the River Beni, more or less between 12° and 15° south latitude, and 68° and 71° longitude west of Greenwich. In the north, they reached as far as the territories occupied by Pano-Aruác speaking tribes. East of them are to be found the Moxo. The tribe called Maropa, or Marupa,⁸ formerly lived in and near the Mission de los Reyes, on the right bank of the Beni. West of the Tacana are the Kétšua, the Aymará, and the Lapatšu of Apolobamba.⁹ The

² Indians who fought with slings and metal axes, mentioned in the "Jornada del capitán Juan Alvarez Maldonado (1567-1569)", publicada por Luis Ulloa, Sevilla, 1899; reprinted in Dr. V. M. Maúrtua's "Alegato Peruano," tomo viii. Chunchos; Madrid—Barcelona, 1906. The author of this all-important narrative must have been the pilot of Maldonado's expedition.

³ "Carta de los misioneros fray Juan Muñoz, fray Juan de Ortega, etc., al Obispo del Cuzco"; Maúrtua, op. cit., pp. 96-103.

⁴ Relación Histórica de las Misiones Franciscanas de Apolobamba, por otro nombre Frontera de Caupolicán; La Paz, 1903, pp. 56-58; cf. Rivet, "La Lengua Lapaçu," p. 513, note 2.

⁵ The Lord's Prayer in Guariza was published by Professor E. Tezza in his "Saggi Inediti di Lingue Americane," Appunti Bibliografiche; Annali della Università Toscana, x, pt. 1, Scienze Nool; Pisa, 1868.

⁶ Likewise mentioned in the above quoted narrative.

⁷ See my Moseteno Vocabulary, p. xcii.

⁸ "Then came the Marupas, who occupied the junction between the Beni and Madre de Dios," says the anonymous author of the narrative.

⁹ According to Créqui-Montfort—Rivet they belong to the Aruác linguistic family; cf. op. cit., p. 520.

Sapibocona attached to the mission of the Moxo were formerly the most eastern branch of the Tacana group.

Father Cardús¹⁰ describes the Tacana of Tsiama as docile and agricultural. The Cavina, however, are considered by the same author as very averse to any kind of manual labor and personal subjection. These Indians work, D'Orbigny remarks, only in order to obtain food and European trifles, which they use for adornments. They are of darker complexion than the Moseteno-Tšumano, yet their color is almost white in comparison to that of the Kétšua and Aymará. The Tacana are as tall as the Moseteno and Xuracaré. The average height of the men is from 163 to 165 centimeters. There are many among them who have the body covered with large patches almost white, probably the same cutaneous disease which affects the Moseteno.¹¹ They do not differ widely from the latter. The Tacana are, however, of less feminine appearance. The face is regular and cheerful. The nose is short and somewhat flat. They are of relatively strong build, robust in shoulders, and well chested. The eyes are horizontal and expressive, the hair long and black.

It is the man who has to erect the hut for the family. The savage Tacana, both men and women, go entirely naked; the Araona women wear little aprons made from the bark of the Biboci tree and at times woven from cotton.

As to the Araona, Father Nicolás Armentia furnishes the following data. They are tall, strong, agile, and jolly, but extremely lazy. Some of them have beards. He observed also bald-headed men among them, a fact very seldom noted among South American Indians. They perform some agricultural work, but their primary occupation is the collection of forest produce. Their food consists chiefly of game, fish, and fruits, the last being collected by the women in the forest. They are skilful fishers and use quadrangular weirs made from palm leaves. Only primitive rafts are used as means of transportation. They build large houses, each of them occupied by twenty or more

¹⁰ Las Misiones Franciscanas, pp. 168, 169; see also *L'homme Américain*. I, pp. 377-378, and Lafone Quevedo, Tacana, p. 6.

¹¹ Moseteno Vocabulary, pp. xxii-xxiii.

families, but each family with a fireplace of its own. They sleep in conical shelters, in order to protect themselves from the ferocious attacks of the zancudos.

Both Araona and Cavineña engage in agricultural work. The men cut down trees and bushes, but they do not take part in sowing, transplanting, harvesting, and so on. This and every other kind of agricultural labor is done by the women who also gather fuel, cook, and weave clothing.

The caciques of the Araona are polygamous; the other men of the tribe also have as many wives as they can buy or capture. These Indians generally have no great regard for the marital tie, and interchange of women occurs frequently. Marriage ceremonies are unknown to them. The father of the girl whom the man has selected is consulted, but the girls have no voice in the matter. The bride's price is an ax or two. In case of disapproval the girl is simply captured or carried off.

The weapons of these Indians are the bow and arrow. The latter are greater than those used by their Caripuna (Pano) neighbors. According to the above mentioned narrative of Alvarez Maldonado's journey down the upper Madre de Dios, the Pamaino fought with slings and metal axes.

The "almonds" of the *Bertholetia excelsa* are broken with small stone axes, which are fastened to the handles with very hard resin.

The chieftaincy is hereditary. The father is succeeded by his favorite son, who receives the title of Ecue,¹² and generally he is recognized by his kinsmen before the cacique's death.

A dead person is buried in his own hut, but funeral urns for the second burial have been used by both Araona and Toromona.¹³

From my sources of information, of course, it is very difficult to obtain a correct and clear idea as to the religious beliefs of the Tacana-speaking tribes.

Baba-Bu-Ada¹⁴ is regarded as the demi-urge and ruler of the universe. He seems identical with Vutana, "the wind," who

¹² Armentia, Tacana, p. 10, gives *Ecuai putsu*, which means "ruler-being."

¹³ Armentia, Cavineña, pp. 4-5.

¹⁴ *ala* means "consanguineous," cf. *ata-piisi*, Cavineña.

lives to the south.¹⁵ Buada's aid they beseech in all their enterprises. To their pantheon belong also a god of the sun, or the year, another of health, a third of the fire, and still others. The idols of these gods are kept in a house of worship, where are deposited also the ornaments and attire which the Indians don at their periodical religious feasts.

In an exploration made in 1887 in search of a route from the middle Madre de Dios to the river Aquire (Acre) Araona villages were reached. The men wore their hair long and plaited like the Chinese, and both sexes wore girdles and petticoats. The explorers, Colonel Labre and Mercier, report a rude form of government and worship. "Temples" with numerous idols of wood and stone were found, and the "priests" were in charge of all the religious ceremonies and duties. The idols were of three kinds. Those of the first class were a yard-high, cut from blocks of *Isonta* wood, carved with figures, and adorned with beautiful feathers. The second class called "the guard," were formed of ten lances of the same wood, two yards long, well-polished, and terminating at a point made of another piece of very fine wood. The third class of divinities consisted of many small stones, the origin of which could not be determined. The idols of the first-class were gods of the wind, the seasons, and the moon, and among them are many gods for the special protection of men. The small stones are intended to benefit agriculture—the maize, yucca, seeds, fruits and the ripening of harvests; but among them are the gods of rain, rivers, and lakes. There are also gods for fish and amphibious animals.

Women, because they are considered impure, are not allowed to take part in the worship or even to enter the temples. Armentia likewise states that the women are not allowed to see the idols and the attirements. Should a woman see them she would die, or at least become blind.¹⁶ The women, however, play small flutes made from bones during the performance of the dances.

Feasts are celebrated with dancing, as are also the seasons of planting.¹⁷ On these occasions the Araona garland themselves

¹⁵ Evidently a "creator" in the sense of Andrew Lang, *The Making of Religion*, 2nd ed. 1900, p. 193 ff.

¹⁶ Armentia, Cavineña, p. 13.

¹⁷ Armentia, op. cit., p. 9.

with plumes. They play ball, and, having belted themselves with the bark of a tree, they receive the ball on the belly and with a strong movement cause it to rebound.

SUMMARY PRESENTATION OF THE ETHNOLOGICAL AND SOCIOLOGICAL STATUS
OF THE TACANA

Habitations	Quadrangular houses, occupied often by twenty or more families.
Navigation	Small rafts. These Indians are not very expert craftsmen.
Fishing	Quadrangular weirs made from palm leaves.
Weapons	Bow and arrow, the latter being characterized by pitch-feathering. ¹⁹ Metal axes, slings, clubs, darts, and shields ornamented with feathers. ¹⁹ Big knives, and daggers (?) made of <i>tsonla</i> wood, lances (?)
Dress and personal adornments	The savage Toromona wore shirts made of cotton. The Araona women wore little aprons woven from the bark of a tree called <i>biboci</i> , and sometimes woven from cotton. The toucan (called by the Araona <i>parava</i>) feathers are kept in <i>tacuíra</i> (cane) tubes. ²⁰ The Araona wear necklaces made of pierced quaburn (wild boar-javali teeth). Rows of seeds are also used. Bracelets and the like below and beneath the knees are used by the Tacana women. ²¹
Industries	Spoons made from <i>tsonla</i> (<i>Bactrix</i>) wood. Small stone axes fastened to the handle with resin. Fans made from palm leaves. Pots and jars of all sizes and shapes to hold water, and fermented drinks, to keep coca, etc. <i>Masa-mahi</i> , a kind of shirt, usually sleeveless and similar to the <i>cusma</i> of the Atsiri and the Amuésa Indians, are woven by the women. ²² Yet, judging from the Araona name, it seems to me that those shirts are made rather from the prepared fibres of a certain <i>tsonla</i> palm

¹⁹ P. W. Schmidt, *Kulturkreise und Kulturschichten in Südamerika*, in *Z E*, 1913, p. 1036.

²⁰ Mentioned by the anonymous author of the narrative.

²¹ Armentia, *Cavineña*, p. 10.

²² Armentia, *D'Orbigny, Tacana*, p. 6.

²³ Armentia, *Cavineña*, p. 11.

	called by the Araona <i>mahi</i> . ²² From the same material seem to be made likewise the bags called <i>tsoro-mahi</i> ; cf. <i>tumaké, totahi-palm, Tacana</i> , p. 75: cf. Cardús, op. cit., p. 293.
Musical Instruments	Little flutes generally made of bones, with three hollows. ²⁴
Fire-making	The method of making fire by friction of wood on wood and thus igniting the ground-off particles (fire-drill) is in use among these Indians. ²⁵ According to Armentia, they are not very expert in fire-making by friction. ²⁶
Marriage	Either by purchase or by capture, according to circumstances.
Social Status	They are polygamous. General degradation of the women. Chieftaincy is hereditary. <i>Concentration of power</i> , the whole power being vested in the cacique who is an absolute despot and disposes arbitrarily of all tribesmen, their families and their property. They are reduced to a state not unlike slavery.
Religion and Ceremonies	Here we have an amalgamation of elements which belong to different cultural strata.
Disposal of the Dead	By direct burial. ²⁷ Though there are indications that seem to point towards indirect burial. ²⁸

Here we may summarize the process of the gradual amalgamation of those elements which constitute the intellectual (religious) and material culture of the Tacana tribes.

Primitive Culture ²⁹	The method of fire-making. Little skill in navigation.
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²² Armentia, op. cit. p. 11, says, "woven from cotton."

²⁴ Op. cit., p. 13.

²⁵ Op. cit. p. 9.

²⁶ Generally they use the wood of the Jucaya, called by them *ediqui*; Tacana, p. 55 n.

²⁷ Armentia, op. cit., p. 13.

²⁸ Ibid., pp. 4-5.

²⁹ P. W. Schmidt, op. cit., p. 1022

I. Exogamic-monogamous culture (pygmies and pygmoids)	P. Schmidt	} Anckermann-Foy
	Graebner	
II. Exogamic, with equal rights for both man and wife	Primitive culture of Tasmania	} Primitive culture

- Culture: Exogamic-paternal organization.³⁰ The bark belt. It is unquestionably related to that used by the Jamamadi Indians hunting with blow-guns.³¹ This close-fitting gown enables them to blow more powerfully. The Araona evidently don their bark belt for similar reasons. To this culture belong likewise the daggers made from *tsonta* wood.³² The idols of the god of the tiger, of the wild boar, etc., are traces of totemism. This cultural circle is the home of sorcery. The Araona were greatly given to the practice of magic arts.³³
- Culture: Exogamic-maternal organization.³⁴ Necklaces made of perforated teeth of the wild boar. These teeth are closely related to the moon mythology. Here the moon is the ancestress (ancestor) of the tribe. The new moon is greeted by the Araona with shouts of joy. The worship of the moon is manifest.
- Free-motherright Culture³⁵, Shield and sling are characteristic weapons of the motherright culture.³⁶ The small stone axes, however, may belong to a later period. The same may be said as to the flutes with three hollows.³⁶ *cucu*, *xuxu*, "uncle," brother of the mother, is a very important word in the languages of tribes with female descent. Several families inhabit the same house (communal houses). The dead buried in the house. After a certain time the bones are disinterred, especially the skull, and then buried again in large

³⁰ P. W. Schmidt, I. c., No. IV. Graebner's "West-Papuan culture," Ankermann's "East-African culture," Foy's "Totemic culture."

³¹ Wrestlers and carriers wore undoubtedly for the same reasons straps closely tied around the wrist.

³² The term *cuchillo*, knife, employed by Armentia is rather vague.

³³ "In religious matters," says Colonel Suárez when speaking of the Caripuna-Pano of the river Madeira, "they do not seem to be as idolatrous and superstitious as the Araonas."

³⁴ P. W. Schmidt, I. c., No. V. Graebner's "East-Papuan Culture," Ankermann's "West-African Culture," Foy's "Bow-Culture (Two class system)."

³⁵ Shield and sling may indicate also Andean influence; cf. P. W. Schmidt, op. cit., p. 1053.

³⁶ This kind of musical instrument seems to appear for the first time, however, in the exogamic-mother-right culture.

³⁷ P. W. Schmidt, I. c., No. IV (instead of VI). Graebner's "Melanesian Culture," Ankermann's "West African Culture," Foy's "Bow Culture."

Free-fatherright
Culture³⁹

earthen urns.³⁸ This method of burial is related to the head-trophy and the head-cult.

Fans made from palm leaves. Despotism: tribesmen in slave-like condition. Absolute power of the chief or cacique. *Itseti Edutsi*⁴⁰ is the name of the god of the sun (Sun-cult).

Their rafts, as well as those used by the Moseteno, denote the influence of Andean culture. The metal axes of the Pamaino might have existed only in the minds of the Spanish adventurers. Shields and slings likewise show Andean influence.⁴¹ Thus *livi-livi* (reduplication of movement) "sling" (honda) is surely a borrowed word.⁴²

Pottery and the art of weaving were developed by them quite in accord with the above-mentioned cultural circles (Kulturkreise).

Baba-Bu-Ada is considered as the creator of heaven, the sun, the moon, and the stars. Whether he is the ancestor of the sun we do not know. He is the wind, and his residence is in the south. The feasts at the seasons of planting and harvesting are dedicated to him.

The masque dances are, undoubtedly, relics of a primitive secret society. The partial exclusion of the women shows how certain changes in the economic as well as in the political life of the tribe rendered obsolete the secrecy which during the period of matrilineal succession had been strictly observed in regard to those feasts from which the women had rigorously been excluded. The rise of secret societies is directly associated with the powerful economic position of the women during the period of matrilineal succession. These prerogatives, degrading as they were for the men, had to be counterbalanced, and, whenever possible, masculine authority over the women recovered.

³⁸ Armentia found funeral urns with bones, yet without the skull. The head of the dead had probably been kept separate.

³⁹ P. W. Schmidt, op. cit., No. VII. Graebner's and Foy's "Polynesian-Culture," Ankermann's "Sudan-Culture."

⁴⁰ Armentia, op. cit., p. 12.

⁴¹ P. W. Schmidt, op. cit., p. 1052 and p. 1053.

⁴² *Viu-viu*; see Cavineña.

To sum up: The Tacana group represents, from an ethnological point of view, an amalgamation of totemic and exogamic tribes with maternal descent, which also were influenced by their highly civilized Andean neighbors.⁴³ The anonymous author of the above quoted narrative with well-founded reason states, "All these provinces are inhabited by people clothed in cotton, and all having rites and ceremonies like those of the Yunga in Peru."

MEXICO CITY.

⁴³ Moseteno Vocabulary, p. xxiv, where I stated, although erroneously, "Tacana, Leco, Araona, etc., were not much influenced by the more highly developed culture of Peru and Bolivia." Recent inquiries, however, have enlarged my knowledge as to the cultural and linguistic relations that doubtless exist between the cis-Andean tribes and the high culture of Peru.

THE DOMESTIC USE OF OIL AMONG THE SOUTHERN ABORIGINES¹

By HERBERT B. BATTLE

OIL and fats are very closely allied in their chemical relations and their domestic uses, as well as in their other properties, and the two can not well be treated separately. Basally they consist of carbon, hydrogen, and oxygen. Less fundamentally they are chemical combinations of glycerin and certain acids among which may be mentioned oleic, palmitic, and stearic acids. If oleic acid predominates in the compound it is liquid and forms what we know as oil. If palmitic or stearic predominates, it forms what we know as fat. This brings us to other properties of these compounds, and we can subdivide them into those of vegetable and those of animal origin, with liquid and solid properties at ordinary temperatures. Oils and fats of this character differ essentially from the oils of mineral origin, such as petroleum, from which are produced mineral lubricating oils; we are not concerned with these latter in the present paper. Mineral oils when heated distill off without change of properties, while animal or vegetable oils when heated are decomposed with the loss of their properties and chemical nature.

Attention is called to the very important property possessed by some of these oils of absorbing oxygen from the air, with a resultant change of their properties, and especially one which causes a hardening in their nature. This fact gives us the drying oils such as linseed, the non-drying oils such as peanut, and the semi-drying oils such as cotton seed. For obvious reasons the drying oils are used at the present day in paint mixtures. The non-

¹ Presented at a meeting of the Alabama Anthropological Society held March 10, 1921, at the aboriginal cemetery at the mouth of Pintlala Creek, in Lowndes County, Alabama. The author is a member of the American Oil Chemists Society.

drying oils, as well as the semi-drying oils, are very widely employed because they are edible, and because of the facility with which they can be further used in producing solid food, such as margarine, butter, etc. These oils are varied considerably owing to the fact that they may, and do, contain one or more combinations of the oleic, stearic, or palmitic acid with glycerin. For example, the semi-drying cotton seed oil contains mainly the glycerin combination with oleic acid, as well as with stearic. The latter, when the oil is chilled by cold, becomes visible, settles away from the oleic acid solution, and becomes solid, dissolving however when the oil is warmed, and forming again the original liquid. Animal fats contain a preponderance of stearic acid with glycerin, and are accordingly solid at ordinary temperatures. They also contain the oleic combination in proportion, varying according to the source of fat. This property gives fat its oily touch and greasy effect.

Before leaving the chemical portion of the subject it should be stated that it is easy to separate these oily and fatty combinations with glycerin by the action of caustic of soda or potash, or by heat or mineral acid. The glycerin can then be preserved by appropriate means. Its uses are well known; among other compounds it forms the powerful explosive, nitro-glycerin. When oils are decomposed by caustic of soda or potash, another resultant compound is formed which we know as soap, it being the oleate, stearate, or palmitate of soda or potash. The composition is easily formed from materials of domestic origin, but the Indians did not know of this possibility. By leaching domestic ashes with water, the necessary caustic of soda and potash is secured, and by boiling with refuse fats from the domestic kitchen, or oils that are saved in various ways, a good quality of soap can be made in an ordinary boiling pot. The preparation of soap in this way was not known even to the ancient Romans, and the mighty Caesar, while using the luxurious baths of his period, had to be content with a rubbing down with oil with which ashes were mixed.

The general chemical properties of oil are as follows: Specific gravity 0.91 to 0.94, insoluble in water, hot or cold, but soluble in various ethers, chloroform, carbon tetrachloride, and turpen-

tine. Some of these facts were unconsciously taken advantage of by the Indians in ways that will be described later.

It is rightly to be supposed that any uses to which our southern aborigines applied the oils at hand could not have been other than the most primitive. Their mode of living would not admit of any advanced uses of these substances, or even a full knowledge of the simplest properties which they possessed. What they learned about them was due to almost self-evident facts, which came to light in connection with their daily customs. Also the sources for obtaining such oils and fats were those which commonly presented themselves in their regular pursuits, and they went no further in their search.

The oils and fats used by them were as follows:

1. *Oils and Fats of Animal Origin.* The principal and almost the entire source for these fats was the black bear (*Ursus Americanus*), which was found throughout the whole Southern region. The nature of this animal caused him to put on a large amount of fat during the summer and fall in order that he might go into winter quarters with a sufficient supply to last him until warm weather appeared. Consequently, taken at the proper season, these bears produced large quantities of oil and fat, as well as exceptionally good meat for food. Other wild animals furnished similar material, but it is certain that bears were the principal source of animal fats. "Bear ranges" were left by the several adjacent tribes for the exclusive propagation of these animals; there no towns were allowed and all hunted in common. Such a bear range extended from Line Creek, between Montgomery and Lowndes Counties, Alabama, as far as the Chattahoochee River.²

2. *Oils and Fats of Vegetable Origin.* These were almost exclusively from native trees, such as the black walnut (*Juglans nigra*), and the hickory nut (*Hickoria alba*) known now in some localities as "mocker nut." Also the shell-bark hickory nuts

² A paper on this subject was read by Mr. Peter A. Brannon at an earlier meeting of the Society. During the exploration at Pintlala just before the presentation of this paper a well-preserved half of the lower jaw bone of a bear was unearthed, with well-preserved teeth.

(*Juglans exultata*) were sometimes used. The live oak (*Quercus Virginiana*) yields acorns which were considered of great importance, and were much resorted to. Bartram³ during his travels through this region in 1773-1776 describes this source as follows:

The trunk of the Live Oak is generally 12 to 18 ft. in girth, and rises 10 or 12 ft. from the earth, then divides itself into three or four or five great limbs . . . sometimes to a distance of fifty paces from the trunk . . . It bears a prodigious quantity of fruit; the acorn is small, but sweet and agreeable to the taste when roasted, and is food for almost all animals. The Indians obtain from it a sweet oil, which they use in the cooking of hominy, rice, etc., and they also roasted it in hot embers, eating it as we do chestnuts.

The black walnut furnished the most desirable of all these oils, and the earliest writers, notably those who accompanied De Soto in 1539-41 through this region, were impressed with its uses, and often referred to it. Ranjel⁴ writes of it as follows:

It was Saturday, the 5th of June that they entered Chiaha, and since all the way from Xuala had been mountainous and the horses were tired and thin, and the Christians were also themselves worn out, it seemed best to tarry here and rest themselves, and they were given an abundance of corn, of which there was plenty of good quality, and they were also given an abundance of corn cakes, and no end of oil from walnuts and acorns, which they knew how to extract very well, which was very good and contributed much to their diet, yet some say that the oil from nuts produces flatulence. However, it is very delicious.

The Gentleman of Elvas,⁵ describing the stay of the explorers at this village, in another narrative written at a later date, mentions additional facts as follows:

On the fifth of July the Governor entered Chiaha. The Cacique received him with great pleasure . . . and . . . the Governor answered him that his gifts . . . pleased him greatly. . . . There was abundance of lard in calabashes drawn like olive oil, which the inhabitants said was the fat of the bear. There was found likewise much oil of walnuts, which like the lard was clear and of good taste, and also a honeycomb, which the Christians had never seen before, nor saw afterwards, nor honey nor bees in all the country.*

In early times the black walnut was found everywhere in the interior, and in fact the Indians were in the habit of growing these trees near their towns either by transplanting or raising them from

³ Bartram, Travels, London, 1792, p. 8.

⁴ Narratives of De Soto, New York, 1904, vol. II.

⁵ Ibid., vol. I, p. 74.

* This notable fact is also confirmed by Biedma.

seed. This indeed was almost universally practised, and even now we find trees growing on these old sites. It is not to be supposed that the original trees set out by the Indians are still living, but that the ones found there are seedlings from them. They were originally planted in straight rows, and even now they exhibit the same straight lines. Three such trees are on the site of old Fort Toulouse.

PREPARATION OF OILS AND FATS

There are three ways in use at the present time of obtaining oils and fats from the living things which produce them.

1. *By Rendering.* This is separation by means of boiling in water or steaming, which melts out the oils or fatty materials. These, being lighter than water, rise to the surface, and can be dipped off or allowed to flow to suitable vessels for cooling and for further purification.

2. *By Extraction.* This method is by the use of certain liquid solvents which dissolve the oily or fatty materials very thoroughly. The next step is to distill off the solvent and to recover it for future uses, leaving the oil alone and in a purer form. In this there is always danger of contamination from the solvent, and a consequent effect upon the flavor of the oils or fats.

3. *By Pressing.* This is the standard way in use at the present time in the manufacture of all oils in use in the cotton-seed oil, and peanut oil mills in this region. The meats or kernels from the nuts, after being removed from the hulls, are either pressed whole or rolled or ground by means of suitable machinery, hydraulic or otherwise. Then the meats are either heated or pressed cold, the latter plan securing the better quality of oil, but yielding a much smaller output. Pressing, however, leaves a high percentage of oil in the residual cake, something like 7 per cent, and this, of course, is lost as oil, though it is of value in the cake, which is ground and used as stock food.

ANCIENT PREPARATION OF THE OILS

As was to have been expected, all mechanical processes among the Indians in their every day operations were of the most primitive kind. The nuts must be cracked and the kernels or meats must somehow be extracted from the shells. All of this neces-

sarily required laborious work, which fell usually to the women. The maize or corn was broken and ground in a large wooden mortar, made from a section of a tree in which a cavity had been burned out to sufficient depth. The pestle was also of wood, and some feet in length. This operation was carried on while standing. The nuts on the other hand, being harder, required a harder surface, and more time was required to break them. This was done by means of another stone called a "hammer-stone." In many cases the hammer-stones are of granular quartz somewhat easily disintegrated, chosen for the reason that the rough surface would not slip from the nut when pounding it. It is more than likely, nay, almost certain, that the labor of the children of the towns was used to crack the nuts. The large flat stones called "nut stones" contained small cavities which were formed by hammering out with another more pointed stone. We find these at almost every village site.⁷

The hammer-stone was not difficult to secure, because stones of the required shape can easily be found in beds of streams, already rounded, and in many cases pointed by the water's action. The nut stones oftentimes have more than one cavity, in some cases as many as five. In this way five nuts can be cracked almost as quickly as one or two. Jones,⁸ in referring to these nut-stones, says:

Their cavities are so located that one, two, three, five and sometimes more nuts could be cracked at a single blow delivered by means of the circular flat crushing-stones so common.

To separate the oil from the cracked nuts, whether walnuts, hickory nuts, or acorns, the Indians knew but one way, the first method above described. They boiled the cracked portions in water without separating the meats from the shells, in a suitable pot which had also been made by the women. This caused the separation of the oil, and owing to its lower specific gravity and insolubility in water it rose rapidly to the top and was skimmed off and stored in pots of suitable size provided with covers. This is

⁷ Later, a number of excellent specimens of nut-stones and hammer-stones were found near the place of meeting and served to illustrate these references.

⁸ C. C. Jones, Jr., *Antiquities of the Southern Indians*, New York, 1873, p. 318.

described by Jones⁹ in quoting Ranjel, Hariot, Bossu, and Lawson.

The Southern Indians, especially those resident upon the rich valleys of the interior, devoted no little time and attention to agriculture. With them maize was emphatically the staff of life. Upon its nutritious properties they relied both during its milky state and when dry. . . . Generally beaten in a mortar, it was either boiled for hominy or mixed with hickory nut milk, walnut oil, or fresh bear fat, was baked into bread or fried as cakes.

In combination with corn flour and when fried in fresh bear's grease, it (starchy extract from smilax roots) made excellent fritters.

Walnuts and hickory nuts were diligently collected, cracked and boiled in vessels, when the oil, which rose to the surface, was skimmed off, and carefully preserved in covered earthenware jars. This oil was highly esteemed in the preparation of their corn cakes.¹⁰

Bartram¹¹ also described, in 1773-76, the general practice for securing the nut oil. The unsettled oily portion was used in the nature of milk or rich cream.

I have seen above an hundred bushels of these nuts, shell-barked hickory . . . stored up by one family [of the Creeks]. They pound them to pieces, and then cast them into boiling water, which after passing through fine strainers, preserves the most oily part of the liquid; this they call by a name which signifies hickory milk. It is as sweet and rich as fresh cream, and is an ingredient in most of their cookery, especially homony and corn cakes.

HOW THE OILS AND FATS WERE USED BY THE NATIVES

In order of importance the various uses of oils and fats were as follows: first, as food; second, in paints; third, in leather making or the treatment of skins; fourth, for bodily health; fifth, in hair dressing; sixth, for the rubbing and polishing of ornaments and implements.

1. *As food.* This use is of more importance than all the others. To the historical references already given, the following may be added, mainly from Jones¹² who also states that

Under the term walnut, the historians probably included not only the nut which we designated by that name, but also the varieties of the hickory nut with which the country abounded.

⁹ Jones, op. cit., p. 44.

¹⁰ Bartram, op. cit., p. 38.

¹¹ Bartram, loc. cit.

¹² Jones, op. cit., p. 316.

Biedma¹³ says, 'In the province [Chiaha] where we began to find the towns set about with a fence, the Indians get a large quantity of oil from walnuts.' At various points reached during the progress of the expedition walnuts were found stored in the granaries of the natives.

Cabeça de Vaca¹⁴ asserts that these nuts ground with a small kind of grain, furnished subsistence for two months in the year.

Jones¹⁵ also writes:

Among the natives in Louisiana the walnut was so important that the thirteenth moon was called the walnut moon, and it was during that month that they cracked their nuts.

Again, referring to the uses made of walnuts by the Virginia Indians, Hariot¹⁶ says:

They break them with stones, and pound them in mortars with water to make a milk, which they use to put into some sorts of their spoonmeat.

Again Jones says:

Bernard Romans¹⁷ assures us that the Florida Indians *used hickory nuts in plenty* making from them a milky liquid of which they were very fond, and which they ate with sweet potatoes.

It is interesting to record the fact that the Hon. W. T. Robertson, former mayor of Montgomery, has told the writer that he recalls that a Negro woman, a former slave, often employed this same process, pounding the nuts in a mortar and grinding with water to secure a milky emulsion with the oil in the nuts which was very palatable. This slave was familiar with many of the native medicines and remedies for the treatment of the sick, and oftentimes was able to cure loathsome diseases that had been given up by white physicians.

Such was the extent of the oil manufactured by the natives, that it became an article of commerce soon after the arrival of European traders, and was regularly exported. Bartram mentions meeting a caravan of pack horses, carrying skins filled with

¹³ Narratives of the Career of Hernando de Soto, Smith's translation, New York, 1871, p. 90.

¹⁴ Relation of Alvar Núñez Cabeça de Vaca, Smith's translation, New York, 1871, p. 90.

¹⁵ See Du Pratz, History of Louisiana, London, 1763, vol. II, p. 195.

¹⁶ A Brief and True Report, Frankfort, 1590, p. 18.

¹⁷ Romans, Natural History of East and West Florida, New York, 1775, p. 68.

oil, bound for the Atlantic coast. In 1798-9, Hawkins in his "Sketch of the Creek County," records the trading value of a bottle of oil of hickory-nut to be 75 cents, when at the same time pork was \$4.00 per cwt., which would make a bottle of this oil equal nearly 19 lbs. of pork. The trade bottle of that day was the whiskey bottle, of very heavy glass, black in color, squat in shape, and with a very deep deceptive depression under the bottom. Its capacity, originally possibly a quart, had dwindled to $1\frac{3}{4}$ pints. It is of record that an Ohio soldier, in training at Camp Sheridan in 1918, unearthed on the Connelly place near Montgomery, one of these bottles, actually containing some of the oil.

2. *In paints.* In ceremonies and for personal adornment, as well as for some of their utensils and implements, the Indians used paints to satisfy their desire for display. The base of all paint is a ground mineral or ore, mixed with some liquid material to cause it to be retained upon the surface on which it is applied. This process was known to the natives, and they used water, oil, or grease. For permanency the last two were used. They ground the mineral bases in cavities of hard flat stones of compact nature similar to those employed for cracking nuts, and they also used stone pestles in the same manner. The colors were red, black, vermilion, brown, yellow, and white. Most of these colors were obtained locally, from iron ores or various clays, or else were secured by trade from Indians of other regions. After the colors were ground, oil was mixed in and ground again. For applying the paint, we may well suppose that brushes were readily thought of and used, consisting of hair or bristles from the bear, deer, or other animals. Lawson¹⁸ refers to the Indians of North Carolina as follows:

Moreover they buy Vermillion of the Indian Traders wherewith they paint their Faces all over red, and commonly make a Circle of Black about one Eye, and another Circle of White about the other, whilst others bedawb their Faces with Tobacco-Pipe Clay, Lamp-black, black Lead and divers colors. . . . It is impossible ever to know an Indian under these colors although he has been in your Home a thousand times. . . . As for their Women, they never use any Paint on their Faces [What a commentary on the present!].

¹⁸ Lawson, *History of Carolina*, London, 1714.

The earthenware pots were often painted of a solid color, and others perhaps decorated. Broken portions of pots of solid red color are found at the present time in burials, and on the surface, the former particularly showing the color still well preserved.

3. *In Leather Making or the Treatment of Skins.* To preserve the skins of the wild game for their own uses, whether for adornment or personal wear, or for protection in sleeping and so forth, was the Indian's first desire. Strange to say, they were in many places acquainted with the action of certain barks to better preserve the skins of deer and bear, although they did not know the reason therefor, and leather by tanning was thus made in a primitive fashion. Jones¹⁹ tells as follows of the method of doing this:

They prepared their skins by first soaking them in water. The hair was then removed by the aid of a bone or stone scraper. Deer's brains were next dissolved in water, and in this mixture the skins were allowed to remain until they became thoroughly saturated. They were then gently dried and while drying, were continually worked by hand and scraped with an oyster-shell or some suitable stone implement to free them from every impurity and render them soft and pliable. In order that they might not become hard, when exposed to rain, they were cured in smoke, and tanned with the bark of trees. Young Indian-corn beaten to a pulp answered the same purpose as the deers brains.

Lawson²⁰ describes the practice of the Carolina Indians, as he found them, as follows:

They wear shoes of Bucks, and some of Bears skins, which they tan in an Hour or two, with the Bark of Trees boil'd, wherein they put the Leather whilst hot, and let it remain a little while, whereby it becomes so qualify'd as to endure Water and Dirt without growing hard.

Salt is used at the present time in drying out the skin, when it is desired to preserve the hair, by rubbing on its under side. This dries out the raw skin, causes the constriction of the hair follicles, and so prevents the hair being lost. After being dried, it is worked by hand to make it pliable, and finally it is rubbed down with oil in order to make the quality permanent.

Without doubt this plan was in use by the Gulf Coast Indians,

¹⁹ Jones, *op. cit.*, p. 62.

²⁰ Lawson, *op. cit.*

and probably others. Mention is made by the Gentleman of Elvas²¹ of an experience at Cayas, in the present State of Texas:

The salt is made along by a river, which when the water goes down, leaves it upon the sand. As they cannot gather the salt without a large mixture of sand, it is thrown together in certain baskets they have for the purpose, made large at the mouth and small at the bottom. These are set in the air on a ridge pole, and water being thrown on, vessels are placed under them wherein it may fall; being strained and placed on the fire, it is boiled away, leaving salt at the bottom.

That salt was used in the same region was very evident, for mention is made²² of the skins in use at that place:

Three Indians came the next day with loads of cow-skins, and three days afterward came twenty others. . . . He brought a present of many cow-skins, which were found very useful; the country being cold, they were taken for bed covers, as they were very soft and the wool like that of sheep. Near by, to the northward, are many cattle.

4. *For bodily health.* The Indians used bear fat and other oils to rub the body in order to make the skin supple and healthy. That they used oil internally is not stated, but they without doubt knew its value, on account of the large use it had as a food. Jones,²³ speaking of the Georgia Indians, writes:

Oglethorpe shortly after the settlement of Savannah, speaking of the Indians food there, declares that they, as the ancient Germans did, anoint with oil and expose themselves to the sun, which occasions their skins to be brown of color. The men paint themselves of various colors, red, blue, yellow and black.

5. *In hair dressing.* This was also practised, and bear fat was used largely for the purpose. Lawson²⁴ comments on the practice in 1700 by writing:

Their Dress in Peace and War is quite different. Besides, when they go to war, their Hair is comb'd out by the Women and done over very much with Bears Grease and red Root. . .

6. *For the rubbing and polishing of ornaments and implements.* Although we have no direct authority for the statement, we may be sure that the ornaments and implements bearing a polish which

²¹ Narratives of De Soto, New York, vol. 1, pp. 135-136.

²² Ibid., pp. 139-140.

²³ Jones, op. cit., p. 257.

²⁴ Lawson, loc. cit.

has remained to this day were polished by the use of oil or grease, after the shape of the ornament or implement was secured by rough grinding with other stones. An additional rubbing after oiling would give the desired polish. In the many examples of finely polished hammer stones, ceremonial axes, gorgets, and other articles which we have at the present time, we can be reasonably sure they were polished in this manner. The natives gave to their bows the closest attention, for they were their main dependence in war and in the chase. The choicest woods were carefully selected, shaped, and preserved, and Jones²⁵ tells us that they were "frequently anointed with bears grease to render them flexible and keep them from cracking and breaking."

YIELD OF OIL FROM NUTS²⁶

	<i>Black Walnut</i> (<i>Juglans</i> <i>nigra</i>)	<i>Hickory Nut</i> (<i>Hickoria</i> <i>alba</i>)	<i>Cotton Seed</i> (Upland variety)	<i>Peanuts</i> (Runner variety)
Wt. in grams per 50 nuts	531.	325.5	5.5	56.8
Number of nuts to the lb.	42	69	4100	511
Proportion percent- age of kernels in whole nut.	10.26	19.50	53.50	73.15
Percentage of oil in kernels	50.30	67.42	36.25	46.60
Percentage of am- monia in kernels	6.56	2.17	6.25	5.45
Percentage of pro- tein in kernels	33.72	11.16	32.13	28.00
Available oil in 100 lbs. whole nuts (gals.)	0.625	1.20	2.10	3.88

MONTGOMERY, ALA.

²⁵ Jones, op. cit., p. 257.

²⁶ Samples of both walnut and hickory nut oil were exhibited. They were produced by extraction with a solvent, which in this case was petroleum ether. Methods in use by the natives could not of course give an oil of the purity or appearance comparable to these examples. Samples of peanut oil, the native ground pea, and cotton seed oil were shown for comparison. All of these samples were of crude oil, and not refined by a chemical process. Refined oil by means of caustic of soda in the usual way was shown, as also oil bleached by standard fullers earth, great improvement over the crude oil being very evident. All of these processes were of course unknown to the ancients.

THE COMPLEXITY OF RHYTHM IN DECORATIVE ART

By GLADYS A. REICHARD

INTRODUCTION

IN PRIMITIVE art we frequently find such complex units that the motive of rhythmic repetition is very difficult to discern, in fact it sometimes seems to be entirely absent. But since we find a conception of order or rhythm in music differing from that which we readily recognize, it is quite conceivable that there may be a similar difference in art. In regard to this question Mr. Charles W. Mead of the American Museum of Natural History made a few observations (*Boas Anniversary Volume*, pp. 193-195) on Peruvian textiles and discovered what he called a "six-unit design." He found that the "six-unit" principle holds not only for one-row bands, but also for a larger surface composed of a number of rows. For example, six designs are repeated in the same order on a poncho so that they form six diagonal rows from left to right. From casual observations made of the Peruvian textiles exhibited at the American Museum it appears to the writer that a number of other "rhythm-units" and design combinations could be discovered, some of them exceedingly complex, owing to the extensive use of diagonals and zig-zag patterns, but nevertheless following definite mathematical laws.

Such a development is not surprising, however, when considered in relation to the other achievements of the Peruvians, e.g., the fineness of materials and weaving, the art of dyeing, and the combinations of beautiful colors. The occurrence of such phenomena formulates the question: Do primitive people have a definite plan in carrying out their ideas in beadwork, embroidery and other handicrafts?

The materials used in trying to answer this question are as follows: One hundred and five designs of beadwork and embroi-

dery made by the Thompson River Indians, which were collected by Mr. J. A. Teit; bands of skin in the collections of the American Museum of Natural History used for decoration of fur coats by the natives of Siberia; and Roman stripes on modern ribbons, girdles and silks as observed by the writer whenever occasion permitted. Conferences with Mr. Charles Mead and with Mr. M. D. C. Crawford, one of the editors of *Woman's Wear*, also proved helpful.

The question of rhythmic repetition is, in many cases, a simple one. There is no doubt, for instance, that there is a definite plan in repeating a design or group of designs on a Tlingit basket or on a beaded band from the Plains area. We are accustomed to recognize units of perhaps three or four elements even if no definite space separates them. Furthermore, we notice immediately an attempt at repetition of units consisting of as many as fourteen, fifteen or even more elements if a space is kept between the units, as is the case with the Roman stripes which have been in vogue for a number of years. But if, as happens in many of the Thompson River bead necklaces, the unit consists of a number of elements with no device to separate the units, it is more common to suppose that the rhythmic motive is absent and that the stringing was done aimlessly.

Not only have we discovered the existence of complex units, but we desire to know the reason for their occurrence. Several possibilities suggest themselves: Was the effect the result of chance? Did the artist have a definite design in mind and know that in carrying it out she would produce an aesthetic effect? Or, did she play with her technique and because of the desire for variation secure a satisfying object with no definite picture of the whole in mind as she worked?

In such a discussion it will be necessary to state that by an aesthetic effect we mean that the worker has made an object, which, to her, or to her and her social group, is satisfactory. We could not, for example, say that we consider every color combination used by a South African pleasing, although the effect to him would be perfect. On the other hand, we could not be assured that his taste would approve of many combinations which we

would call harmonious. Taste, after all, is a matter of cultivation; the people of Mozart's day did not fancy his music. Many of us have not succeeded in preferring jazz to Mozart, or in transferring our loyalty from the Italian to the Cubist school of painting. Let us then, in this discussion at least, consider the finished product and its beauty only from the point of view of its maker, and, if possible, withhold our own opinion with regard to its aesthetic appeal. We might, for the sake of clearness, substitute the word "satisfying" for "aesthetic" in this connection. Furthermore, let us be prepared, if occasion should demand, to dissociate proceedings which in our minds are commonly related, as for instance the association of design and color. Each may be developed without the slightest regard for the other.

SPECIMENS EXAMINED

Of the 203 sketches collected by Mr. Teit, 105 were sufficiently complex to be of interest in approaching the problem. These include necklaces made by simple bead-stringing, by combining several threads of beads, by looping threads of beads, by stringing beads and fringes, and by embroidering beads on skin; bracelets; dresses trimmed with beads and fringes; stripes on dresses and belts, and fringes on leggings. Besides beads, *elæagnus* seeds, cactus seeds, and *dentalia* were used, and sinew and hair serve for fringes. There are often two, three, or more necklaces or stripes of the same style which would indicate that they were made by the same worker. The material at hand gives positive data in the case of only two workers, Sinsintko and her daughter *Tëkwitlixkën*. These women made the most beautiful of the specimens collected, stripes embroidered in combinations of yellow, blue, black, white, red, and green.

Other examples which furnish data are the embroidered bands made by the Russianized natives of Siberia. The bands are nearly a foot wide and are used as borders of fur coats. They consist of a strip of red felt appliquéd with a zigzag skin design. A stripe joins the felt strip to the wide central portion which is made up of rectilinear design units embroidered on skin with silk floss of many colors. When speaking of the bands we shall

refer to this central portion which furnishes some of our conclusions because of the intricacy of its color combinations and application of the design. A second slit-embroidered piece connects it with a stripe of black velvet, ornamented like the red felt band, and the whole is finished by a narrow strip of skin, slit-embroidered and fringed. Four of these bands were examined, only one of which was sewed to a coat so that its position showed the intention of the worker with regard to symmetry. No other bands of the same kind were available but the similarities exhibited in these four leave little doubt as to the purpose of their makers.

It was suggested that observations of modern clothing might prove instructive. Some years ago, for instance, it was fashionable to trim dresses with buttons of various colors, the color-units repeated at such long intervals that a glance did not reveal the motive of repetition. Accordingly, Roman stripes in silks, ribbons, scarfs, etc., were observed. Through the kindness of friends who owned them I was able to examine about a dozen in detail. I noticed nearly a hundred, however, on the street, in subway trains and public conveyances. In every case it was possible to differentiate immediately the unit—sometimes of a large number of elements, sometimes of a few—because the designer had left a definite space of the tone-color between the units. Consequently the data on Roman stripes is disappointing, for the problem is to discover order in supposed chaos and this material leaves no doubt as to the designer's intention.

There occur, on the other hand, two relevant questions. How did the complexity of such design originate? How did the innovator get the idea of combining brilliant colors in stripes more or less wide, and how did he determine which colors should be used? The answer to the first question is lost in antiquity. Many very old and valuable shawls and scarfs are known to have come from Italy, but materials with the same principle of decoration come from diverse parts of the world, and their originators are unknown. The latter question provoked a discussion concerning how styles are created, and which ones succeed and why. In this discussion Mr. Crawford emphasized the difficulty in analyzing motives but gave grounds for fruitful speculation founded on his experience in studying women's dress.

DATA PRESENTED BY THE SPECIMENS

Doubtless simple bead stringing offers a very great field for variety. There are not so many restrictions as, for instance, in embroidery or weaving. The embroiderer, like the mural decorator, must consider her space, the adaptation of working materials to the working surface, size, proportion, and the like. Accordingly, to produce a finished article she must have attained a high degree of expertness and consequently nicety of judgment. In stringing beads, however, there is only one dimension, length, to be considered; one bead or so, especially if small, would not greatly affect the appearance of a necklace or bracelet. Hence it should prove easier for a worker to make a symmetrical or rhythmic circle than otherwise. But ease of accomplishment is not always uppermost in the primitive worker's mind, and the results obtained show that other factors determine the appearance of the finished product.

Before describing the specimens two cautions must be given. First, symmetry may be due to the point of view taken. For example, the beading on the front of dress Fig. 14, *b* if counted from center down would be absolutely asymmetrical, but if counted from the bottom up to the center is symmetrical except that two elements (half a unit) are repeated at the meeting-point. Such an occurrence is doubtless due to the fact that the maker began at the bottom on one side and worked toward the center; then she repeated the process on the other side but misjudged her distance and required two more beads to fill the space. It is necessary then to read the specimens from every possible angle. Second, beads of varying size are strung to fill a given space which does not always require the same number. This fact is demonstrated in eight necklaces of which necklace 6 is an example (two small black beads on one side balance one large black on the other), and must be considered when regularity or symmetry is discussed.

We have considered as a rhythmic unit a combination of motives, either of color or design, which is regularly or symmetrically repeated. Such a unit may consist of any number of elements and varies from two to eighteen or more.

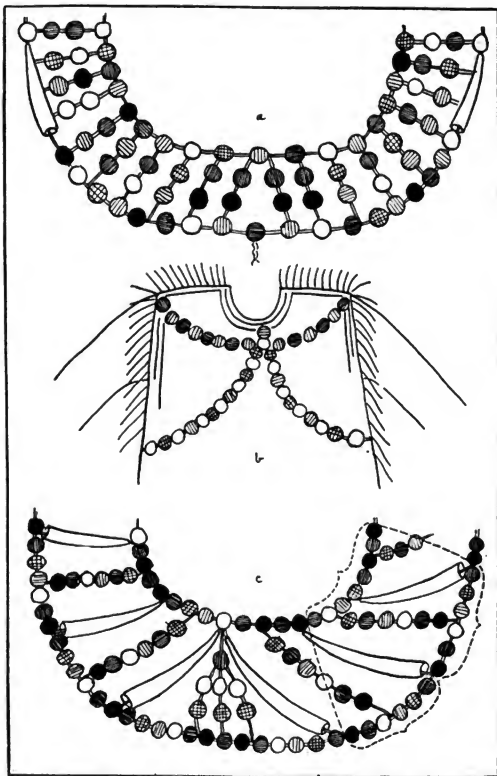


FIG. 14.—*a, c.* Necklaces; *b.* Bead decoration on dress. All from the Thompson Indians.

Thompson River Necklaces

Our first consideration will be the irregularities presented in bead stringing. A string can be threaded with various kinds of beads, and not have a single repetition of arrangement. The necklaces of strung beads will be considered in one group whether they involve loops and fringes or not, for their classification is purely arbitrary. It is more convenient to consider beadwork in the two groups, stringing and embroidery.

Of the thirty-nine objects of the first group, seven show definite irregularities, but of these only two lack a discernible attempt at order.

In the following schemes the small letters indicate small beads, the capitals large beads, and where primes are affixed, shades of the color indicated.

R red
Y yellow
G green
B blue
A black

O brown
P purple
D dentalium
W white

2 (p. 190). Read from tie at back. One of the two examples where no order whatever is discernible. There are 19 red, 8 green, 10 blue, and 8 yellow beads, all the same size, strung to form a necklace.

3 (p. 190). Beads same as 2. Main string two at a time, the colors corresponding on the two sides for about two-thirds of the distance, then strung at random. Between each pair of beads are fringes consisting of from five to eight beads of the same kind, two of which are paired and similarly placed and two alike but not similarly placed, one being the seventh and the other the ninth from the center loop. The scheme represents half the necklace read from the centre of the front; the letters arranged vertically represent the fringes; the / indicates that from that point on the main string is symmetrical.

4 (p. 190). Necklace of dentalia with beads as in 2, the latter arranged in fringes between the former, only two fringes being alike, one placed at the extreme back of the necklace, the other at the third interval between dentalia. The necklace appears untidy and careless in workmanship.

BBGRBBYGBRRRGGRGYBRRGRYYRRRBGRGRYYBRRYGR

No. 2.—Necklace, irregular arrangement.

RYGBRBYVRGAYRGGBRGR/YYGGBRRYYBBRRGGBBAAARYBR..
 G B R R G B R R G B R Y R G Y B Y G R Y
 B R R G B R G R G Y G G Y B Y G R Y B
 Y R R R R G R G R B B B R G R Y B B
 R R G B R Y B G B R R Y R Y B B R
 Y G G B R Y B G Y Y R R Y R Y B
 R G B Y Y R B B R B B G B R B G
 B B B R R B B B G

No. 3.—Necklace with irregular fringe and partly symmetrical main string.

DRDRDBGGDGGDRDRDRYBBRGGRDRDYDBDRDRDRD
 G Y Y G Y P Y R G G Y G G Y B G
 Y G G Y B R G R G Y B Y B G
 B B B B G R Y B Y B R Y
 R R P G Y R P R G P

No. 4.—Necklace with dentalia and irregular fringe.

5. Fig. 14,*a*. Two strings of beads like those used before and dentalia connected by short horizontal strings of the beads, each beginning with one bead at the back and increasing to four in number in the front. Four of the cross-strings are similarly threaded and similarly placed on either side of a central bead, but there are no others alike. The illustration shows only the central portion of the necklace. Wide hatching represents green, close hatching red, cross hatching blue, solid black black; white represents yellow.

6 (p. 192). Small pale and dark blue, red, light and dark green, brown, yellow, white; and large black, green, red, blue and yellow beads form a necklace of very irregular appearance, but on one side a unit of 18 elements is repeated in reverse order to make symmetrical about one-third of the necklace; only this part will be shown.

7. Beads much like 6, but only small and large green, small and large blue, small red, brown, black, and white used to form bracelet with a clasp. Two units symmetrical with respect to themselves occur, one on each side of a pendant which hangs at a distance of two large and six small beads from one end, and at an interval of one large and fourteen small beads from the other. One symmetrical unit consists of a small red bead with a small green, large green, and small green on each side of it. The other has a large central blue bead and on each side a small blue, a white, and a green bead.

gGg r gGg o g a o a gwb B bwg o g r o
 b
 B
 b
 b
 B

No. 7.—Bracelet with pendant.

8 (p. 192). Necklace of two strings of small brown, blue, red, and green beads. The inner string perfectly symmetrical from front to back with regard to space filled and number and color of beads. The outer string arranged with bead fringes, five on one side and ten on the other of a fringed, looped pendant. This necklace was

made irregular purposely because the worker was "told to have it this way in a dream." Only the outer string will be represented.

The question now arises; how much of this irregularity is due to chance? There is little doubt that the maker of 2 had 45 beads and strung them at random, chance decreeing that no repetitions should occur. Necklace 3 shows partial symmetry as evidenced by part of the main string and by the number of fringes, there being fourteen on either side between the back and the central loop pendant. It would hardly be possible to ascribe these features to chance and we must conclude that, regarding design at least, the maker had a definite purpose.

Necklace 5 with its meagre show of regularity is interesting in comparison with a necklace of similar design; viz.,

9. Fig. 14,*c*. Same materials as 5, but dentalia take position of cross-strings of beads. The inner string is perfectly symmetrical, as are the outer loop and the connecting cross strings. The only inconsistency apparent (except two inconsequential mistakes) is that the centers of the inner string and the outer string, including the cross-strings, do not coincide. The result is slightly askew, and may give the impression that no method of construction was used. On the contrary, the necklace may be divided into very complex trapezoidal units (as indicated by the braces), a unit of inner string embracing two units of the outer string elements and the intervening cross strings, with only the lack of central coincidence before mentioned. It is impossible that such a production should be the result of chance and the conclusion is that 5 was an attempt to achieve an elaborate necklace of this style which failed, perhaps because the maker lacked judgment, ability to handle the technique, or thoroughness, or because the attainment of exact symmetry was considered unnecessary or not worth the application it required.

With regard to 3 the same conclusion must be reached, for necklace 10 (p. 192) is made of the same kind of beads combined in two strings with the essential difference that six color combinations consisting of from three to fifteen elements are used on the outer string (including looped pendant which will not be indicated in the scheme) and perfect symmetry is attained on both sides. Six

on the first side the third turquoise would fall exactly midway between the first two.

Perhaps the maker of necklace 6 encountered the same difficulties for she had 9 large beads and many small ones. She probably set out to make a symmetrical whole, discovered that material failed her and strung the rest of the beads in any order. She lacked the foresight exhibited by Carol in planning her necklace, for it would have been possible to form a symmetrical whole had she foreseen the possibility. It must be remembered, however, that her materials, being much more varied, required a higher degree of calculation. Also it is not known at which end she began to work, for had she begun at the other end (i.e., with the small beads) the argument would not hold.

Still another possibility is that the bracelet or necklace was made symmetrically and that beads broke and left the product asymmetrical. In the case of 6, it is hardly probable that as many as six of the large beads would break. Furthermore the small ones that are left are not similarly arranged on both sides of the center.

The same explanation may not be given for 7, for here we have materials which could have been arranged in regular or symmetrical order, as similar ones were in 11, but they were not. This then may be a result of "play with technique." Perhaps a woman saw 11, and, having similar materials, desired to vary the effect, and thus obtained 7 as a result. But, on the other hand, 7 may have preceded 11 in time of execution.

The irregular examples noted and the checks furnished by their regular counterparts urge us to conclude that in general entire lack of purpose is rarely shown.

Three necklaces of a different style from those described are interesting as illustrating the point that symmetry may be necessary in some respects and utterly disregarded in others. These necklaces are formed of small black, red, and white beads threaded in loops between two dentalia. In all three there are, instead of a loop, three beads—red, white, and blue—in the third unit from the back of the necklace, and in the second unit from the front a

large bead—in one case green (Fig. 15), in two cases red—is surrounded by small red beads and takes the place of the loops before described. In this illustration the white represents white beads. There is no doubt about the symmetry of these necklaces as the same idea is carried out in all three in precisely the same manner. But the loops of black, white, and red are irregularly threaded, it being almost impossible to find two alike, and the loop-substitutes which form distinctive elements show a peculiar characteristic. In two of the necklaces, the loop on one side is repeated in *regular* order (counting from either side) instead of in symmetrical order as might be expected from the rest of the necklace. That is, the unit runs blue, white, red on one side and, reading in the same direction, blue, white, red on the other (see Fig. 15). Our feeling for perfect symmetry would require blue, white, red on one side and red, white, blue on the other. In the third it seems to be necessary to have the three colors present, for on one side we have white, blue, red and on the other red, white, blue. Hence, it may be that as long as the elements are present, their order may be disregarded as well as in the less spectacular loops.

We may say, then, that in these three necklaces there is a definite plan with respect to design and placement of the units, but the order of the elements composing them is immaterial.

Besides the desire to attain symmetrical patterns, and the feeling for exact design, the following necklaces illustrate a third point, i.e., the importance of a single color in definite places regardless of the colors occurring between.

12 (p. 192). Beads same as 2, but none green, strung between two strings of small beads—one blue, the other red.

It will be noticed that there are an equal number of yellow beads equally placed on either side of the central yellow bead with one exception, and the color of the intervening beads is disregarded.

13 (p. 192). Beads same as 2, strung in loops usually two of each color at a time. None of the loops are alike but throughout the necklace the beads which joint the loops correspond on either side of the center loop.

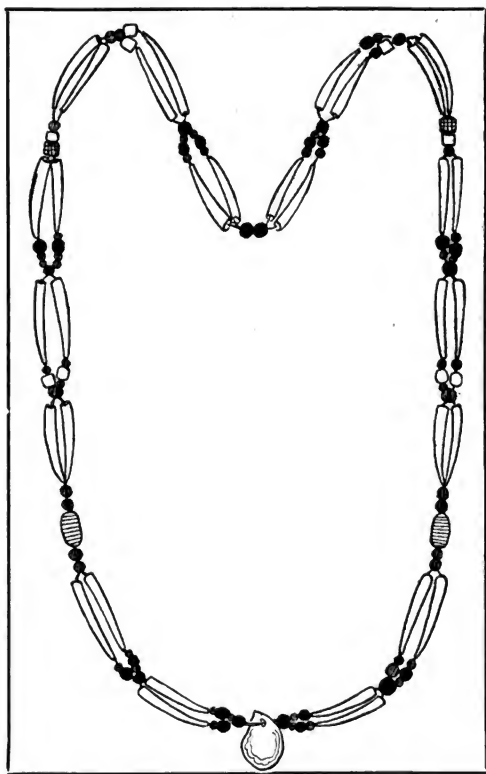


FIG. 15.— Necklace of beads and dentalia (Thompson Indians).

In 14, a double string of beads of the same kind as 2, the design is formed by the arrangement of the red beads:

Y R G R YG R YGB R GGG R GYBG R BYG R YG R B
B R YB R GB R BG R YBG RRR YBG R BGYG R B R B R B

No. 14.—Necklace in which red is design color.

The following scheme in which the dashes represent colors not red, may bring out the design a little more clearly:

- R - R - R - R - R - R - R - R - R -
- R - R - R - R - RRR - R - R - R - R -

Another example of this type of work will be given among the stripes embroidered by a member of the same tribe.

Thompson River Wearing Apparel

The effect of bead stringing, looping or fringing is obvious in a necklace or bracelet. But another psychological element is introduced by fringes on wearing apparel such as we find on the sides of bags, pouches, dresses, coats or leggings. It may be granted that exceedingly complex designs on an extended surface may be discerned at a glance by an eye trained or accustomed to see them. But it is utterly impossible that such can be the case with fringes which hang down in a position not at all similar to the one held when they were made.

The fringes on five leggings are regular in stringing and in placing—if the legging or pouch is held so that the fringes fall in the same plane. They consist of sinew, hair, or skin strung with beads alternating with an empty fringe.

Four others become more elaborate, consisting of from two to six elements in the fringe unit, and, finally, 15 shows an exceedingly complex symmetrical arrangement. If the fringes are numbered they read from top to bottom thus:

1 2 3 D 2 1 2 3 2 1 D 2 3 2 1

In this example the fringes of the centre are longer than those on either end but the color scheme is consistently carried out. (See also Teit, *The Thompson Indians of British Columbia*, Jesup Expedition, Vol. 1, fig. 313). In contrast to the ten regularly fringed leggings, we find only two fringe arrangements

irregular. Fringe 16 is on a woman's pouch which shows only a very limited surface and is, therefore, inconclusive. A legging number 17 is trimmed with fringe like necklace 3. It is similar to the necklace in its irregularity also, for only four fringes are alike and they are placed at irregular intervals. The dashes indicate a fringe of hair or sinew.

_____	-bb r bbbb _____	r
gg b R bb r b _____	1. -bb r bb r b _____	y g bbb rrr
_____	_____	r
gg bo bo bo bo bo b-	2. -bb r bbbb _____	g
_____	_____	y gg bb
gg r B rr b r _____	3. -bb r bb r b _____	y
_____	_____	r rr ggg
Dentalium _____	-bb r bb r b _____	y
_____	_____	g gg rrr g
gg bo bo bo bo bo b-	2. -bb r b r bb _____	y
_____	_____	y
g b R bb r b _____	1. -bb y b r bb _____	r rr bbb rr
_____	_____	g
gg bo bo bo bo bo b-	2. -bb r b r bb ww _____	b bb ggg
_____	_____	r
g r B rr b r _____	3. -bb r bb r bb ww - _____	g gg rrr g
_____	_____	b
g bo bo bo bo bo b -	2. -bb r bb r bb www- _____	r r ggg rr
_____	_____	y
g b R bb r b _____	1. -bb r bb r bb www- _____	b bb ggg rr
_____	_____	y
Dentalium _____	-bb r bb w b _____	r rr bbb gg
_____	_____	y
g bo bo bo bo bo b _____	2. -bb r bb r bb ww - _____	g gg rrr
_____	_____	y
g r B rr b r _____	3. -bb w bbb w _____	b bb
_____	_____	y
g bo bo bo b _____	2. - bbbbbb _____	r gg r
_____	_____	
g b R b _____	1. -R- _____	
_____	-B- _____	

No. 15.—Fringe on legging with complex arrangement.

No. 16.—Fringe on legging with modifications near center.

No. 17.—Fringe on legging irregularly arranged.

In the face of the facts presented by this material we may be almost certain that there is present the element of play, or we might call it desire for variety. The worker perhaps became

tired of stringing all the fringes alike and changed one or more of them. If the final result was satisfactory she made bold to make more changes and thus obtained a more complex design, even attaining as elaborate an effect as 15. It is quite possible that she did not realize the rhythmic motive when the work was finished, but only during the process of creating. A flaw in this reasoning is broached by the question, Were the simple fringes made first and did the others follow in the order of greater complexity? Such a question cannot be answered from the mute evidence of the material. But, whatever may be the answer, there can be no doubt that the worker's satisfaction consists of the survey of the work *as made*, and not in the appearance of it *as used*. For the fringes here described, when worn, show absolutely no care in arrangement and appear as an irregular mass of glass and hide.

Thompson River Stripes

Of the twenty-nine embroidered stripes examined, twenty-three show designs of greater or less degree of complexity regularly repeated and need not be discussed here. Seven, however, show characteristics worthy of special notice. Fig. 16, *g* and another stripe are similar in color and plan, consisting of blue, green, white, brown, and yellow spaces each separated by a narrow stripe of silver beads.

In this stripe the close hatching represents brown, the wide hatching green, the cross hatching blue, the heavy stippling yellow, the fine stippling silver and the white white. Fig. 16, *g* is symmetrical except that an extra green element occurs on one side and an additional white one on the other. There are no smaller units comprising the large symmetrical units. The other stripe is perfectly symmetrical except at the center which is marked by a blue diagonal portion on one side and a yellow one on the other.

The colors of another stripe are regularly repeated in a five-element design but the spaces filled differ in size. Fig. 16, *h* is composed of the same colors, namely, red (close hatching), black, blue, and yellow, but the units are not all alike. The black-yellow-blue-red-blue unit is used twice; then two larger spaces are filled with a black-yellow-red-blue-red-blue motive and the stripe is finished by two black-yellow-blue units. The second

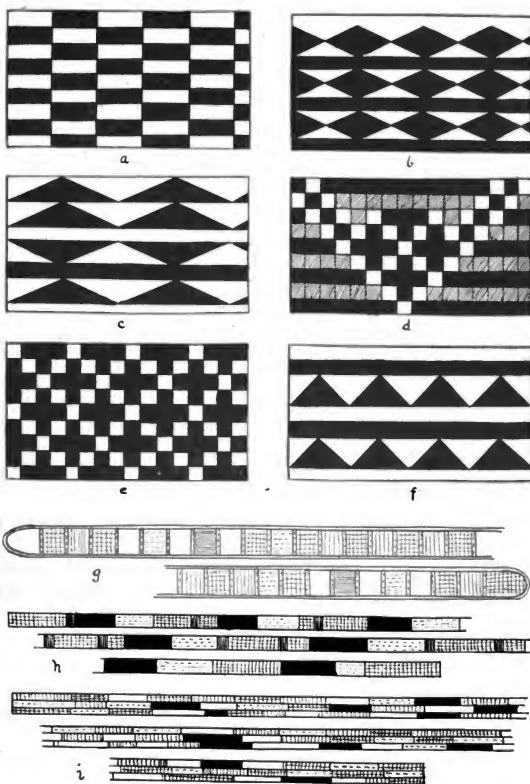


FIG. 16 — *a-f*. Designs on Siberian coat-bands; *g-i*. Stripes on Thompson's Indian dresses.

design appears like an extension of the first as a space-filler, but the extra, as well as the original, red and blue elements are subtracted from the two final motives. Or conversely, the stripe may have been begun with the blue-yellow-black unit, and the others may be a gradual elaboration of the end unit. This explanation seems to me more reasonable, for such designs are usually begun at the end and worked inward. There is no doubt, however, that the arrangement with the introduced variations is far more effective than without them as in the preceding stripe. Here it is quite possible that the artist played with her materials, probably not realizing what the effect of the finished product would be.

Three stripes made by the same worker show interesting variations.

Fig. 16, *i* consists of three rows or stripes, each composed of narrow (about $\frac{1}{8}$ inch) elements of blue, green, yellow, white, and black embroidery, placed one above the other. The same color may overlap in two of the three rows but never exactly corresponds. There is no regularity or symmetry noticeable except that the blue elements are grouped at the ends leaving the central portion yellow, white, black, and green.

A companion stripe omits the blue elements, but introduces spaces composed of silver beads. The colors of this stripe are arranged in two rows. If there is any regularity it is not apparent, although the effect is more than pleasing.

Stripe 18 is very similar to Fig. 16, *i* but much simpler. It is a single stripe, there are no silver beads and the key color is yellow, i.e., there are three spaces filled with other colors, followed by one yellow which alternates with another color—black, green, or white—for six spaces and then the scheme is repeated, the whole stripe appearing graphically as follows (the dashes represent colors not yellow):

— y - y - y - y — y - y - y — y - y - y — y - y - y — y - y - y -

The stripes described, except Fig. 16, *h* and its simpler counterpart were made by Sinsintko and her daughter Tekwitkixken. Since there are numerous examples of perfectly rhythmic stripes made by them, and since they combine peculiar color effects such as these even in making representative designs (as evidenced by

a note of Mr. Teit) it is almost conclusive to say that they play with their materials. As they have attained a high degree of virtuosity, the result of their play is satisfactory, not only to themselves but also to others not accustomed to their style. In 18 we have another very good example of the importance of a predominating color such as that presented in necklaces 12, 13, and 14.

The Coat-Bands of the Russianized Natives of Siberia

a. DESIGN

There remain for discussion the borders on the fur coats of the Russianized Natives of Siberia. It will be recalled that only the embroidered central portion of these borders has been analyzed. The surrounding stripes are simple in decoration and need not be discussed. The designs consist of combinations of rectilinear geometric designs as illustrated, Fig. 16, *a, b, c, d, e, and f*. The light and dark spaces indicated represent contrasting colors which may not mean that only two shades are used in the design; more may occur. Such a representation makes clear the design feature as opposed to the color motives. Only by considering the two independently has it been possible to reach the solution of the problem as presented by these borders. By the introduction of a number of colors (sometimes as many as five) the designs *d* and *e* assume a slightly different aspect, but fundamentally the illustrations are typical.

Each of the borders 70/5736 and 70/5735 (catalogue numbers of the bands in the American Museum) consists of twenty-four elements.

70/5735, the simpler in design, consists of a unit composed of elements *c, a, b, d* repeated six times in the same order.

The elements of 70/5736 are arranged in this order:

d ca(bdc) e(cdc)a (bdc) a(cdb)e (cdb)ac

It will be observed that the band is symmetrical on each side of the small unit (bdc) except for one error on each side; (bdc) or its reverse (cdb) will be recognized also as a part of the larger symmetrical unit as indicated by the parentheses. The central unit (bdc) is either the front or the back of the border. Judging from the position of a similar band on coat 70/6999 it

is the front. If such is the case the irregularities occur under the arms. This phenomenon corresponds with that observed by Jochelson on the Koryak robes, and there has doubtless been influence in either direction, that is, from Koryak to Russianized natives, and vice versa.

Borders 70/7831 and 70/6999 consist of twenty-two elements, the latter being simpler in arrangement:

dbaf dbaf af dbaf dbaf dbaf

Here is complete regularity except where the two extra designs meet in the front where only half the design *fa* is used.

The design plan of 70/7831 may be represented thus:

1	2	1	1	2
bdfa	bdca	bdfa	bdfa	bdca bd

The arrangement, consisting of two units of four elements each, is self-evident.

There is room for little doubt as to the design plan of these bands. There are no definite rules regarding the size of the elements, but their place in the band seems fixed beyond dispute, since all show the same consistency in arrangement.

We do not, however, encounter the same consistency in the

b. COLOR COMBINATIONS

Among the Thompson Indians there was very little evidence (and that was scarcely tenable) that green was confused with blue or yellow. Discrimination was always made at least between the ordinary colors—blue, green, yellow, red, black, and white. Even purple and brown appear to be carefully differentiated. However, there was not such variety of color found in the beads used by them as we find in the embroidery flosses imported by the Russianized natives. They use every shade and tint of all the usual colors which they can procure. They know that blue and green are different, for both may be used in the same design. If they considered the two colors as one there would be no design formed. But on the other hand, blue and green may be used indiscriminately if only one is needed. For example, there would be no hesitancy in using blue to complete a design begun in green if material of the latter color became exhausted. A medium tint

of purple, too light for purple, too dark for lavender, is classed in the blue-green category. Dark shades of blue, green, brown, and red may be used instead of purple or black, and in one case a brilliant orange appears to take the place of red. Besides these classifications yellow and pink may be interchanged. From such observations, then, it may be inferred that the most important aim is to effect a contrast, although there is no inability to detect differences in color, but merely a mode of classification differing from ours. In other words, there is a color feeling, but no differentiation between color, shades, and tints.

Observers of the neighbors of the Russianized natives confirm these remarks in general. Middendorff (quoted by Ratzel, *History of Mankind*, II, p. 213) says the Tungus were able to distinguish tints only after long pondering. Ratzel (*ibid.*), in speaking of the Lapps, believes that the difficulty is not one of inability to distinguish but lack of vocabulary for expression. Jochelson gives the Koryak color terminology which agrees fundamentally with that displayed by the specimens under discussion. At any rate the limitations of vocabulary are confirmed by the psychology presented in working out the design.

With these qualifications, then, we may present the results obtained by a careful analysis of color use on the coat borders. In all of the bands the odd places are occupied by two-color combinations, these being with very few exceptions blue-yellow and red-blue. I have been able to discover no regularity in arrangement of these combinations. We may perhaps consider them as separators, and proceed to an investigation of the method of filling the even places. The following groups are general indications of the combinations. (It must be remembered that every imaginable shade or tint may be used for any one of the colors specified.)

(t) = blue, white, black.

(x) = white, yellow, purple.

(y) = red, white, purple (black, brown, blue, green)

(z) = red, white, yellow, dark shade of blue, black or red

The arrangement may now be represented graphically for the four bands, i.e., the filling of the even places.

70/5735

Places	2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24,
Combinations	z y z x z y z x z y z x

70/5736

Places	2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24,
Combinations	s y y ? s y y y s y y y

70/6999

Places	2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22,
Combinations	y y y y y y y y y y y

70/7831

Places	2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22,
Combinations	y y z y z t x y y t y

(y)

It is hardly necessary to point out the rhythmic repetitions of 70/5735 and 70/5736; they are very obvious; 70/6999 does not, by any means, give the appearance of the consistency shown in this classification because of the very great differences in tint and shade of flosses used. 70/7831 appears unplanned and careless although in reality the effect is quite as good as in the others, since even in the most elaborate ones, the arrangement is not apparent and can be discerned only after the most detailed scrutiny.

Such complications as are shown by these bands could not have been the result of play, especially when we realize that they have been achieved simultaneously with the complexities of design before noted. Finally we must remember that the separating elements which fill the odd places further complicate the effect. 70/6999 has eliminated one source of complexity by keeping all the even places filled by the same, or approximately the same, combinations. The last border, 70/7831, fails to present any well-defined plan, whether the odd places or the even are considered, or even if the two are taken together. It may be well to recall, however, that in this band the design symmetry, while not quite as elaborate as 70/5736, is more perfectly carried out.

Generally speaking, these bands show that where the greater complexity of design is found the simpler becomes the color arrangements, and conversely, but in each case perfection in design predominates.

It is my opinion that these bands must have been carefully planned before they were made, and where the worker was skilled in the art of calculation and possessed judgment with regard to space and proportion the results are products almost phenomenal in execution. Where the worker had attained a smaller degree of virtuosity the result suffered either in becoming more simple or in being inaccurate. This inaccuracy shows itself in the display of the color alone, whereas the design remains symmetrical with few errors. The adaptation to the working surface has been secured by lengthening or shortening the design elements rather than by changing their number, for there is no regularity in their size.

ORIGIN OF MODERN STYLES

We have had brought to our attention the results of primitive craft; the question of origin is now relevant. To get at the root of this query we knew of no method except an attempt to explain the styles of our own civilization. Mr. Crawford pointed out a conclusion which we had drawn from the observations given above, namely, that the world's *creators* in any art could be counted for the most part on the fingers of one hand. It is estimated that for every dress, coat, or hat which "takes" with the best-dressed women, fifty have been submitted for approval and summarily discarded. But of all the many presented for criticism, only rarely does one production appear which is actually unique. All the rest are adaptations of what has gone before—play with the technique.

The source of the original ideas is as elusive as the temperamentality of the great audience which adopts or discards them. Their innovators say they are due to "inspiration," our primitive friends "see them in a dream," and that is as far as we get. We know, however, that behind the inspiration or dream is the desire to please and it may be satisfied by the deliberate execution of symmetry or regularity as well as by purposeful departure therefrom. The satisfaction obtained in the irregularity of a Thompson River stripe may be as great as that secured by using one shoulder band of velvet and one of flowers to support the bodice of an evening gown. And as long as the aim is attained it matters little what means are used to achieve it.

CONCLUSION

The specimens examined and analyzed give undisputed evidence of the desire to achieve a satisfactory effect. The few departures from the attainment of it are due to lack of perspective, limitation of material, carelessness, or failure to acquire virtuosity in the use of the technique.

It is very common to find symmetry or regularity, but both occur more often in execution of design than in color. Satisfaction is found quite as often in variety as in regularity and much variation is secured by extending units to a high degree of complexity or by preserving design and simultaneously changing color. One color sometimes predominates and the others perform the rôle of space-fillers, their colors being unimportant.

There are few creators and many imitators; the latter secure their effects by adapting their materials and the use of them to the designs furnished by the innovators they are following. They, too, have a desire for change and find it, not through inspiration or dreams, but by experimentation or play with materials and method. In some cases, the whole creation must be visualized before it is begun, and the results of such foresight are shown by great complexity.

In drawing these conclusions we are limited by the scantiness of our acquaintance with the chronology and with the makers of the art forms. To overcome these limitations we suggest that specimens from other areas be examined, that artists be interviewed with regard to motives whenever possible, that examples of known authorship be analyzed, and, if possible, the time of manufacture with respect to other results of the same worker be ascertained. In this way the worker's motives may be discovered and also the relative occurrence of simplicity or complexity.

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JAMES MOONEY

JAMES MOONEY

James Mooney was born at Richmond, Indiana, February 10, 1861, and died in Washington, D. C., on December 22, 1921, in his sixty-first year. His father was from West Meath, Ireland, and his mother from Meath, where the ancient capital of Tara is situated, and which in former days appertained directly to the Irish crown. He was educated in the public schools of Richmond and afterwards taught for two terms himself. In 1880 he entered the office of *The Richmond Paladium* where he worked both at the case and in the editorial room. Early developing an exceptional interest in the American Indians, he read omnivorously upon the subject and walked many miles to obtain books dealing with them. His devotion to this study culminated a few years later in a secret determination to make his way to Brazil in order to investigate the aborigines of that country, but in Washington he had the good fortune to meet Major J. W. Powell, the founder of the Bureau of American Ethnology, then in its infancy, who became so much impressed by him that he gave him a position under himself. This was in the year 1885, and from that date until his death Mr. Mooney retained his position as Ethnologist in this institution pursuing almost continuous researches among the Indian tribes of the Southeast and the Great Plains. He focussed his attention particularly upon the Cherokee and the Kiowa but extended his studies to the Cheyenne and in a lesser degree to many of the other tribes of the trans-Mississippi country and the Great Plateau. His reading was so extensive that it covered nearly all of the peoples of America north of Mexico. Before leaving Indiana he had begun the compilation of a list of Indian tribal names which was afterward of material assistance in the preparation of the well-known "Handbook of American Indians" in which he took an active part. Still later he accumulated the materials for a monumental work upon the

population of the tribes of the same area which still remains in manuscript.

In addition to his strictly scientific work he prepared Indian exhibits on behalf of the Government for the Spanish Columbian Exposition, Madrid, Spain, 1892; the Columbian Exposition at Chicago, 1893; the Tennessee Centennial and National Exposition at Nashville, 1897; the Trans-Mississippi Exposition at Omaha, 1898; and the Louisiana Purchase Exposition at St. Louis in 1904, from some of which he received medals in acknowledgement of his services.

He was one of the founders of the American Anthropological Association, a member of the Anthropological Society of Washington, of which he was Vice-president in 1909-10 and President in 1914-15, and a member of the Mississippi Valley Historical Association and the Nebraska State Historical Society.

He always had a deep love for the country of his ancestry, was an officer and local organizer in the Land League at the age of eighteen, and was a moving spirit in the formation of the Gaelic Society of Washington which he served as President from its foundation in 1907 until 1910. He wrote a number of articles on Irish customs, gave considerable attention to the study of the Irish tongue, and followed the home rule and republican movements with the utmost sympathy.

Mr. Mooney's attitude toward the subjects of his study was not merely scientific. He took an intense personal interest in them, was always ready to listen to their troubles, to lay their difficulties before those who might be able to adjust them, and to spend time and money in aiding them to obtain any and all advantages which he believed to be their just due. When he had once reached a conclusion he maintained it with unfaltering courage and clung to it with a tenacity which not infrequently seemed to his friends to be carried to extremes, but of the honesty of his intentions there could be no doubt. This attitude was oftenest in evidence in defense of a subjugated race or an oppressed class, for which the circumstances of his ancestry were no doubt largely responsible. But beneath all was an intense emotional attitude which was a part of himself and was the secret both of his success

as an ethnologist and his influence as a man. From this particular point of view he has had few equals among ethnologists and certainly no superiors. In consequence of it he had a wide acquaintance among peoples other than the Indians and those of his own race and among classes other than that to which he naturally belonged. At the time of his death he was recognized as the leading authority on the Cherokee and Kiowa Indians, as well as a foremost authority upon the Indians of the entire Plains area, while no one was probably as well read on the earlier history of the tribes north of Mexico taken as a whole. In 1897 he married Ione Lee Gaut of Cleveland, Tennessee who, with six children, survives him.

On the day after his death a meeting of ethnologists and anthropologists of the Bureau of American Ethnology and the United States National Museum and the officers of the Smithsonian Institution was held to pay honor to Mr. Mooney's memory and the following resolutions were adopted:

WHEREAS: The scientific staff and the other co-workers of the Bureau of American Ethnology and of the Department of Anthropology of the United States National Museum and the officers of the Smithsonian Institution have received the sad intelligence of the death of Mr. James Mooney on the 22d day of December, 1921, who was for thirty-six years an Ethnologist in the Bureau of American Ethnology: Therefore be it

Resolved, That we do here and now record our profound sorrow in the severing of the many ties that have bound us to him during the long period of his official service in a chosen field of special effort; and that we keenly feel the loss of a painstaking and sympathetic co-worker and tireless student, whose knowledge of those ethnic activities of the American Indian, to which he gave especial attention, was unsurpassed, if indeed equalled, by that of any other scholar, and was of infinite value not only to the work of the Bureau of American Ethnology but also in kindred anthropological study wherever it may be pursued in the world at large, and whose devoted interest in his chosen study and research has been in the highest degree a source of inspiration to his colleagues and associates.

Resolved, That we share deeply in the grief of all anthropologists at the untimely passing away of one who was at once a noted student and worker in the field of ethnology, a patriotic citizen tolerant of all spiritual faiths, a fine example of Christian gentleness, and who possessed a marked independence of character and a charming personality as a man and as a friend.

Resolved, That we respectfully tender to the members of the family of our late associate our sincerest sympathy in their great bereavement.

Resolved, That a copy of these resolutions be transmitted to the family of our late collaborator and friend.

(Signed) J. N. B. HEWITT,
Chairman of Committee on Resolutions

Committee on Resolutions

J. N. B. HEWITT
WALTER HOUGH
JOHN R. SWANTON

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(Prepared by Mrs. James Mooney)

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1885. Linguistic Families of the Indian Tribes North of Mexico, with Provisional List of the Principal Tribal Names and Synonyms. (Miscellaneous publications of the Bureau of American Ethnology, 55 pp.)
1887. The Medical Mythology of Ireland. (Proceedings of the American Philosophical Society, vol. xxiv, pp. 136-166.)
1888. The Funeral Customs of Ireland. (Ibid., vol. xxiv, pp. 243-296.)
1888. Myths of the Cherokee. (Journal of American Folk-Lore, vol. i, pp. 97-108.)
1888. The Negro Genesis. (American Anthropologist, o.s., vol. i, p. 230.)
1889. The Holiday Customs of Ireland. (Proceedings of the American Philosophical Society, vol. xxvi, pp. 377-427.)
1889. Cherokee and Iroquois Parallels. (Journal of American Folk-Lore, vol. ii, p. 67.)
1889. Folk-Lore of the Carolina Mountains. (Ibid., pp. 95-105.)
1889. Evolution of Cherokee Personal Names. (American Anthropologist, vol. ii, pp. 61-62.)
1889. Cherokee Mound-Building. (Ibid., pp. 167-171.)
1889. Cherokee Plant Lore. (Ibid., pp. 223-224.)
1889. Indian Tribes of the District of Columbia. (Ibid., pp. 259-266.)
1890. The Cherokee Ball Play. (Ibid., vol. iii, pp. 105-132.)
1890. The Powhatan Indians. (Ibid., p. 132.)
1890. Notes on the Cosumnes Tribes of California. (Ibid., pp. 259-262.)
1890. Cherokee Theory and Practice of Medicine. (Journal of American Folk-Lore, vol. iii, pp. 44-50.)
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1891. Sacred Formulas of the Cherokee. (Seventh Annual Report of the Bureau of American Ethnology, pp. 301-397.)
1892. The Yamasee Covenant. (American Anthropologist, vol. v, p. 26.)
1892. Improved Cherokee Alphabets. (Ibid., pp. 63-64.)
1892. A Kiowa Mescal Rattle. (Ibid., pp. 64-65.)
1892. Kiowa Name Changes. (Ibid., p. 272.)
1892. A Primitive Drum. (Ibid., p. 282.)
1892. Borrowed Ceremonials. (Ibid., p. 288.)

1893. Geographic Nomenclature of the District of Columbia. (*Ibid.*, vol. vi, pp. 29-52.) (The report of a committee of the Anthropological Society of Washington of which Mr. Mooney was chairman, the other members being Wm. H. Babcock, Wm. H. Holmes, W. Hallett Phillips, and Lester F. Ward.)
1893. Recent Archeologic Find in Arizona. (*Ibid.*, pp. 283-284.)
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1896. The Ghost-dance Religion and the Sioux Outbreak of 1890. (Fourteenth Annual Report of the Bureau of American Ethnology, part 2, pp. 641-1110.)
1897. The Kiowa Peyote Rite. (*Der Urquell*, vol. i, pp. 329-333.)
1898. Calendar History of the Kiowa Indians. (Seventeenth Annual Report of the Bureau of American Ethnology, part 1, pp. 129-445.)
1898. The Jicarilla Genesis. (*American Anthropologist*, vol. xi, pp. 197-209.)
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1899. The End of the Natchez. (*Ibid.*, pp. 510-521.)
1899. Quivira and the Wichitas. (*Harper's Monthly Magazine*, vol. xcix, pp. 126-135.)
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1901. Father William Pope. (An obituary notice.) (*Ibid.*, pp. 591-592.)
1901. Our Last Cannibal Tribe. *Harper's Monthly Magazine*, vol. ciii, pp. 550-555.)
1901. Indian Shield Heraldry. (*The Southern Workman*, vol. xxx, no. 9, pp. 500-504.)
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1905. In Memoriam: Washington Matthews. (*American Anthropologist*, vol. 7, pp. 514-523.)
1907. The Powhatan Confederacy, Past and Present. (*Ibid.*, vol. 9, pp. 129-152.)
1907. Albert Samuel Gatschet—1832-1907. (*Ibid.*, pp. 561-570.)
1907. Obituary—Emil Schmidt. (*Ibid.*, pp. 236-237.)
1907. The Cheyenne Indians. (*Memoirs of the American Anthropological Association*, vol. i, pp. 357-478.)
1907. Indian Missions North of Mexico. (A reprint from Bulletin 30 of the Bureau of American Ethnology, 39 pp.)
1907. A Cheyenne Tree Burial. (*The Southern Workman*, vol. xxxvi, pp. 95-97.)
1910. The Indian Ghost Dance. (*Proceedings and Collections of the Nebraska State Historical Society*, vol. xvi, pp. 168-186.) (An address delivered before the Society.)

1911. My Life among the Indian Tribes of the Plains. (Ibid., vol. xvii, pp. 88-95.) (An address delivered before the Society.)
1911. The Indian Woman. (Ibid., pp. 95-103.)
1911. Systematic Nebraska Ethnologic Investigation. (Ibid., pp. 103-109.)
1912. Marking the Oregon Trail. (American Anthropologist, vol. 14, p. 200.)
1915. A Cheyenne Dictionary. (Note) (Ibid., vol. 17, pp. 213-214.)
- 1915-16. The Passing of the Indian. (Proceedings of the Second Pan-American Congress, vol. 1 (Anthropology), pp. 174-178.) (An address delivered before the Congress.)
1916. The Greenland Eskimo: Pastor Frederiksen's Researches. (Journal of the Washington Academy of Sciences, vol. vi, pp. 144-146.)
1919. Piscataway Indians. (The Indian Sentinel, vol. 1, no. viii, pp. 22-24.) Numerous articles in the Handbook of American Indians (Bulletin 30 of the Bureau of American Ethnology), in Johnson's Cyclopaedia, the International Encyclopaedia, the Catholic Encyclopedia, and the International Year Book (1898-1899), besides literary material, principally reviews, in The Nation.

Manuscripts

- Cherokee Medical Formulas.
The Heraldry of the Kiowa.
The Indian Population.
The Peyote Religion.
Notes regarding the Roumanian Gypsies.

BOOK REVIEWS

METHODS AND PRINCIPLES

Introduction to the Science of Sociology. ROBERT E. PARK and ERNEST W. BURGESS. The University of Chicago Press, 1921. XXI, 1040 pp. \$4.50 net.

This comprehensive and, in spite of the number of pages, quite portable volume is a source-book that will undoubtedly prove of considerable value to teachers of sociology. The method of selecting short and pregnant passages seems excellent since it permits the assemblage of a great variety of distinct points of view under a single cover. Each chapter is furnished with an introduction by the compilers, as well as by a selected bibliography, topics for themes, and questions for discussion. Experience seems to prove that even the most rigorously historical attitude toward social phenomena can not long remain wholly free from an attempt to formulate the processes involved in the events studied. Accordingly, anthropologists will do well to acquaint themselves with the views of men like Sumner and Hobhouse, Durkheim and Simmel. Even where they may feel inclined to doubt or qualify, they will derive stimulation, possibly leading to a more adequate formulation; and certainly the book before us will be of the greatest value in showing them the scope and character of recent sociological thought.

ROBERT H. LOWIE

NORTH AMERICA

Indian Village Site and Cemetery near Madisonville, Ohio. By EARNEST A. HOOTON and C. C. WILLOUGHBY. Papers of the Peabody Museum of American Archaeology and Ethnology, Harvard University. Vol. VIII.—No. 1. 1920

Dr E. A. Hooton and Mr. C. C. Willoughby in this publication describe the results of eight years excavation of a prehistoric Indian village site and cemetery near Madisonville, Ohio. The exploration was carried on intermittently from 1879 to 1911. It is a timely contribution to the field of Ohio archaeology and adds considerable information regarding the Fort Ancient culture.

The first section of the report deals with the history of the exploration from the time Dr. Metz discovered the cemetery until the exploration was completed in 1911. Following this the burials are dealt with and by careful comparisons with the mortality statistics of European countries, as well as on the basis of the historical evidence, it is concluded that the cemetery was probably the burying ground of a village of from four hundred and fifty to five hundred in population for a period of about a century immediately prior to 1650.

A comprehensive description of the cache pits including their purpose and present contents is followed by a mention of the hearths and post holes. In connection with the latter it seems as though the writers had missed a very important point. While the house circles nearby show the use of circular dwellings, in at least one case a rectangular structure was outlined by the post holes. This would indicate an early use of rectangular dwellings which later gave way to the circular type.

The artifacts are very fully written up by Mr Willoughby in his usual clear manner. His descriptions are detailed and accurate and the specimens are compared with similar ones from elsewhere. They are well illustrated and the section concerning them constitutes one of the most important contributions of the book.

The skeletal remains have been carefully studied by Dr. Hooton who includes the results of an investigation by Dr. Farabee on the femoral torsion. The conclusions reached by Dr. Hooton are that, while the Madisonville dwellers were related to the Tennessee Stone Grave group and the Iroquois group, they were probably more closely related to other groups in Ohio and Indiana that have not yet been studied.

Another point which might well have received more attention is a study of the dog bones. In the two cache pits mentioned on page 32, five per cent of the bones found were dog bones. There was evidence—not mentioned—of careful burial having been given to at least one dog. Several others were not so carefully buried but were not disarticulated. Thus something of the status of the dog in the community and the different types of dog might have been included. A mound containing several skeletons, about one hundred yards east of the cemetery under a water tank on the "Stites property," was excavated in 1911 but is not mentioned.

One error I notice on the map is that trench L seems to be

incorrectly located. It should be placed south of trench H and east of trench D. If it was desirable to refer to the gravel pits the one at the southwest corner of the cemetery, which has encroached on the latter, should have been noted as it is perhaps the most important.

The article as a whole is well written and of timely interest to students of American archaeology. It is hoped that Mr. Willoughby and Dr. Hooton will be able to continue their work and publish the results of the other Peabody Museum expeditions to Ohio, for instance the one to the Turner group, which made so many unique and interesting discoveries.¹

BRUCE W. MERWIN

SOUTH AMERICA

Las Constelaciones del Orion y de las Hiadas. R. LEHMANN-NITSCHKE, Buenos Ayres, 1921. (De la Revista del Museo de la Plata, tomo xxvi, paginas 17 á 69.)

This is one of a series of forthcoming publications by the same author relating to the ethno-astronomy of primitive South America, an almost untrodden field in which it is most desirable that we should be aided and guided by the author's knowledge and experience. He introduces his subject by contrasting the attitude of primitive and civilized man towards the heavens, that of the former being based on some magical element or formula. For example primitive tribes regard the sun and moon as actual personages and they see in the moon an actual face instead of the image or comparison which we perceive (p. 2). This attitude must be studied and comprehended by those who seek to interpret primitive ethno-astronomy. How were the constellations formed? They were recognized in very ancient and barbarous times in the Old World and, with a few conspicuous exceptions, they have been associated with objects so arbitrarily chosen with respect to the alignment of their stars that it seems very unlikely that similar objects would be associated with the same stars by independent observers. The alignment of the stars of a constellation determined its name. Imaginary lines drawn from star to star on the boundaries of the constellation defined that alignment. Similarities in the constellations of widely separated peoples may often be explained by Bastian's theory of elementary concepts. When certain phenomena, in this case cosmical, react in a similar

¹ Since this was written the report on the Turner group has appeared. (Papers of the Peabody Museum of American Archaeology and Ethnology, Harvard University, Vol. VIII, No. 3.)—Ed.

manner on the "cerebral mirror" of the observer, the identical results demonstrate the unity and homogeneity of the human race, but they do not indicate transmission. The emphasis laid on the opposite view has largely been due to the literal belief in the Biblical tradition of the derivation of all mankind from Eden. This tradition has seriously interfered with the advance of scientific knowledge. Nevertheless there undoubtedly have been ancient relations between America and the Old World and it is the duty of Americanists carefully to investigate such relations, especially in somatology, comparative mythology and the study of the native calendar and astronomy of Mexico and Central America. The author seems to oppose the view that any seasonal element enters into the symbolism of even the zodiacal signs. Here the critic must part company from him. The signs, properly speaking, do not pertain to primitive astronomy and the symbolism of their primitive constellations has probably been considerably modified to accord with seasonal phenomena. The author justly emphasizes the fact that primitive constellations were originated by primitive people, not by savants, and therefore they do not include such objects as the printing press and microscope of our uranography nor similarly inconsistent concepts.

Dr. Lehmann-Nitsche asserts categorically that no constellation in primitive South America bore its Eurasiatic name and that it is a sad error to believe that anything like the zodiac of the Old World was known there and then. As to the latter half of this statement the critic, notwithstanding his respect for the opinion of Dr. Lehmann-Nitsche, and recognizing his own fallibility, must state a very definite conviction to the contrary based on evidence of which he has published only a very inadequate outline as yet. Though willing to accept the author's statement if confined to the really primitive tribes of South America, he is prepared to assert that the cultural leaders among the Aymará and Quichua of Peru were acquainted with a normal zodiac of twelve signs. In the nature of things the knowledge of this zodiac was confined to the instructed few even at the zenith of Inca culture and it is not at all astonishing that no trace of it can be found today among the ruder tribes of the continent or the ruder descendants of that culture. That fact proves nothing against the testimony of Blas Valera and Calancha and the traditions reported by early writers. But Dr. Lehmann-Nitsche is soon to publish a detailed monograph which will oppose the existence of this zodiac and the critic hopes before long to publish his complete studies which

he believes demonstrate its existence. He only asks that students will suspend judgment on these divergent views until both can be adequately presented.

Dr Lehmann-Nitsche then offers us a detailed statement of the various names and concepts associated with Orion and the Hyades by South American tribes, prefacing this with a summary of names and concepts attached to them in the Old World. The resulting comparison of South American and Eurasiatic symbolism reveals no point of similarity except the name "tapir's eye" possibly applied to the star Aldebaran, our Eye of the Bull. Yet while names are indeed entirely dissimilar, the Patagonian association of the three stars of Orion's Belt with the three balls of the bolo with which animals are hunted is certainly suggestive when applied to the Giant Hunter of the sky, and Pirua, the granary, assigned by the author to the Hyades, reflects the cereal symbolism of Taurus and the Pleiades throughout the world.

All anthropologists must be grateful to Dr. Lehmann-Nitsche for the publication of this valuable monograph and the promise of more to come.

STANSBURY HAGAR

EUROPE

A Text-Book of European Archaeology. By R. A. S. MACALISTER, Litt. D., F. S. A., Professor of Celtic Archaeology, University College, Dublin. Vol. 1. Paleolithic Period, Cambridge University Press, 1921, pp. xv, 610.

The present volume is only the first of a series projected by the author to cover eventually the whole field of European prehistoric archaeology. The title page informs us that it covers the Palaeolithic Period, but the reader will find that it does more than this. After the introductory, three of the remaining ten chapters are devoted to Geological, Palaeontological, and Anthropological *Prolegomena* respectively. Then some thirty pages of Chapter V are required in which to dispose of *coliths*; and finally Chapter X is given to what the author chooses to call the *Mesolithic Period*; in other words the stages which are generally referred to as the Azilian-Tardenoisian and the Campignian, including the epoch of the shell heaps. There is therefore in the volume a good deal more than the title suggests.

In dealing with facts, the author strikes one as being eminently conservative. On the other hand, in making use of acceptable evidence for purposes of interpretation, or as a foundation on which

to build theories, he exhibits an unexpected courage that fairly grips the reader. These two notes—one of boldness and one of caution—are distinguishable throughout the volume; each is dominant by turns and it would be difficult to say which is the more convincing. The note of boldness is certainly the more interesting.

The author is evidently over cautious when he rejects all evidence of Tertiary man, or of his precursor, based on the working or utilisation of flint; for such an able, careful, and conservative specialist as the Abbé Breuil accepts unconditionally the artifact nature of certain flints from two distinct Tertiary horizons at Ipswich—one at least as old as the lower Pliocene and the other of upper Pliocene age.

Ultra-conservatism has also dictated his conclusion of the whole matter in regard to the Piltdown man when he says that, owing to the circumstances of its discovery, the Piltdown skull "must be written off as one more of the many pieces of valuable scientific material wasted." (p. 203.)

In Chapter X there is an interesting discussion of the psychology of upper palaeolithic man. In the prehistoric field there are still unscaled heights and unpenetrated depths, and the author is to be complimented on his laudable attempt to bring us nearer to one of these.

GEORGE GRANT MACCURDY

INDONESIA

Through Central Borneo; an account of two years of travel in the land of the head hunters between the years 1913 and 1917. By CARL LUMHOLTZ. 2 vols. Charles Scribners' Sons, New York, 1920.

A work which will give pleasure to many readers. It is a popular account of journeys in and on the borders of the unexplored nucleus of Borneo in contact with unspoiled natives of this fascinating tropical forest. The travel events are well told and the narrative moves with a calmness and balance of statement which is very refreshing. Enough scientific observation of value to the specialist is introduced to bring the reader into the aura of the jungle life with its human and animal denizens and their associations. This picture will be appreciated by scientific students who seek to catch a glimpse of the earlier stages of man.

From Mr. Lumholtz's work we gather that the rust, so to speak, of racial interminglings for many centuries has eaten far into the great island of Borneo, leaving only a central core of what may be considered pure stocks. Very wisely Lumholtz began his investigations far in the interior.

It has appeared wise to the Dutch administration of Borneo, of whose methods Lumholtz speaks highly, to prevent the Malay pressure on the wild tribes, not only to preserve them for scientific study but with the knowledge that they become of less value to the Government when mongrelized. Lumholtz brings out a very interesting feature in changes which have occurred in portions of forest tribes at the river heads who have come in contact with somewhat more advanced tribes down river.

Lumholtz disposes finally of such myths as those regarding tailed peoples and white Borneans.

In the appendix are collected 23 folk tales of some of the tribes visited by the author and special notes on various tribes. There is a good map showing the author's journeys. The photographic illustrations are numerous and excellent.

Some of the topics treated are: Climatic and biological conditions; population; racial problems; meeting Punans, the shy jungle people; Malays versus Dyaks; Kenyas from Central Borneo; funeral ceremonies; priest doctors; feasts; weddings; the Penyah-bongs, men of the woods; the Saputans; ear piercing; among the Penihings; Punans and Bukats, simple minded nomads; a burial cave; omen birds; religious ideas; head-hunting, its practice and purpose; characteristics of the Long-Glats; natives' superiority to civilized man; tattooing the whole body; the flying boat; facts about the Ulu-Ots, the wild men of Borneo; the belief in tailed people; the legend of the ancestor of tailed men; the practice of incision.

WALTER HOUGH

MISCELLANEOUS

L'Eternuement et le Bâillement dans la Magie, l'Ethnographie et le Folklore Médical. P. SAINTYVES. Pp. 143. Paris, 1921.

This little book will be found handy to consult by anyone who, from the point-of-view of ethnography, is interested in the subject of omens. It presents a large amount of remote or esoteric information on sneezing and the kindred phenomenon of yawning as viewed by primitive people and country-folk.

As a corpus of information the book is altogether replete. Its matter, however, is hardly digested. M. Saintyves himself acknowledges the brevity of the comments in which he discusses the features which form the bulk of his book. Such attempts at discussion, he says, "aim to throw light upon that well-known course of evolution

which, starting from a sort of undifferentiated animism, passes over to a spiritistic pluralism and finally finds its goal in naturalism, without, however, precluding lights cast from the point-of-view of a unitarian theology." Such a program we are at a loss to discuss. Its impressiveness cannot fail to strike the reader who may deplore with us that a fuller commentary has not been made part integral of the book.

M. Saintyves's opinion is, in one instance, that the salutations offered to the sneezing person have a twofold origin, physiological and philosophical. The quasi-incoercibility of sneezing led man to single it out as an unusual manifestation among the other issues of the spirit to which he found himself liable. On the other hand sneezing pertains to the head and as such commands a due share of the attention which this sacred part of man's body receives among some primitive peoples. Such generalizations, however philosophically plausible, always raise a wish that the various areas in which this or that type of explanation obtains be more coherently pointed out.

It is interesting to read that some analogy was perceived by the ancients between sneezing and epilepsy. A fit of sneezing was construed as a milder manifestation of the *morbus sacer*. An epileptic fit often terminates by sneezing. Hence have some modern physicians been led to provoke sneezing in the patient to hasten the termination of the fit.

There remains, as one goes over the pages of the book, no aspect of culture which a study of this kind might leave untouched, so multifarious were the meanings put on sneezing. It is to be regretted that M. Saintyves does not bring his views to a more incisive point of formulation. His book stands with the practical qualities, but also the magnified limitations of an encyclopaedia article grown beyond its limits.

P. L. FAYE

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(Extrait des Comptes rendus des séances de l'Académie des Sciences, t. 173, p. 635, séance du 17 octobre, 1921.) 3 pp.

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———. The Ice Age and Man. (*Ibid.*, April, 1922, pp. 52-54.)

Nordenskiöld, Erland. The Copper and Bronze Ages in South America. Göteborg, 1921, vii, 196 pp.

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DISCUSSION AND CORRESPONDENCE

THE "BLOND" ESKIMO—A QUESTION OF METHOD

IN the *American Anthropologist* for July-September, 1921, Diamond Jenness reopens the discussion of the cause of the reported "blondness" in the Copper Eskimo. He takes the stand that the theory of Scandinavian infusion among these people is groundless. With this position I have no quarrel. Indeed, after an examination of some of the "blond" hair, I am rather in sympathy with it. The first six pages of Mr. Jenness's article are as logical and critical as might be asked for. In these pages it is made clear that the "blondness" referred to is by no means a Scandinavian blondness, but a slight diminution of pigmentation such as is quite frequently seen among Chinese, Japanese, Polynesians, Indians, and other Mongoloid peoples.

Mr. Jenness then undertakes to show by anthropometry that the Copper Eskimo are unmixed. He has apparently succeeded to his own satisfaction. It is to be feared, however, that his method will not meet with the approval of those who are in any degree inclined to be critical.

The author takes Mr. Stefánsson to task for using the transverse cephalo-facial and transverse cranio-facial indices as evidence of a Scandinavian or European infusion. He states that these indices are not *standard* and not those usually used in questions relating to race. Mr. Jenness goes on to inform us that "the best indications in regard to race, as far as physical measurements are concerned, are derived, according to the opinions of the leading anthropologists, from the stature, and the proportions of the length of the head to its breadth, i.e., the cephalic index."

Now stature would be valuable in studying a mixture between Eskimo and Scandinavians because there is a tremendous difference in the average stature of the two groups. Yet it is apparently not for this reason that it has been selected by Mr. Jenness. He selected it because "it is recommended by our leading anthropologists," but he does not seem to know what to do with it. He chooses one group, the Ammassalik Eskimo, as purest, and another, the Southwestern

Greenland Eskimo, as the most mixed. Because the Southwestern Eskimo are shorter than the Ammassalik he reasons that intermixture with Scandinavians would result in a group with a shorter average stature than either parental group. If this be true, it is certainly something heretofore unknown. All studies in human hybridization point to an opposite conclusion. Hybrids are either intermediate between the two parental stocks or taller than either parental stock. The fallacy of the method employed is of course the comparison of two separate groups. The logical method of deducing the effect of intermixture would have been to have compared mixed and unmixed members of the same group.

When Mr. Jenness found the Copper Eskimo 19 and 26 millimeters taller than the male and female Ammassalik Eskimo, he concluded that this evidence might almost be said to point against Scandinavian admixture. If we were to approve of the method of comparing two groups we could only conclude that the reverse is true. It should also be mentioned that intermixture with Indians would probably affect stature in the same direction as would intermixture with Scandinavians. For this reason evidence from stature alone would not be conclusive.

In fairness to Mr. Jenness, it should be said that he does not make much of the difference in stature and apparently did not expect much from it. Most of his faith has been put in the cephalic index. Using the same method of inter-group comparison he finds:

Ammassalik men	77.6	women	76.7
Copper Eskimo men	76.9	women	75.6

From this he concludes:

The differences in the figures are so slight as to be practically negligible; they might, indeed, almost disappear if we had a greater number of cases to go by.

Ignoring the fact that the chances are just as great that the differences might increase 100 per cent, it is difficult to see what a strict coincidence would prove. Mr. Jenness does not tell us what result he expected from the intermixture of two long-headed groups. The range of the cephalic index is about the same in the Scandinavian and Eskimo. From this it is of course apparent that the cephalic index is perhaps the most worthless criterion that could be selected.

Whether or not the transverse cephalo-facial index and the transverse cranio-facial index are standard, it is a fact that they, together

with absolute width of face, have proved the most useful criteria of race mixture between mongoloid stocks and the white races. Professor Boas has repeatedly used them to good advantage. Doctor Jenks, in an elaborate study of Indian-White amalgamation, used the same criteria effectively.

In studying the results of intermixture of two groups one naturally selects those characteristics that are most widely contrasted in the two parental groups. In the case at hand the most obvious differences between the Eskimo and Scandinavians are pigmentation, stature, width of face (and consequently transverse cephalo-facial and cranio-facial indices) and the index of build. From an *anthropometric* standpoint absolute face width and the transverse cephalo-facial index are most satisfactory. There is a smaller amount of overlapping in the two groups in both of these characters than in most anthropometric traits. As stated above, the range and mean value for the cephalic index is practically identical in the Eskimo and Scandinavians and consequently we would not expect it to be altered in intermixture.

There is no universal standard for use in testing racial homogeneity. One thing is applicable in one case and another thing in another case. The cephalic index would be most useful in studying the effects of intermixture of Scandinavians and Lapps, North Italians and South Italians or the Apache and Pima. In studying the intermixture of most mongoloid peoples and whites we should preferably use absolute face width, absolute bigonial diameter or the transverse cephalo-facial index. If we were dealing with Negro-White intermixture we should probably select the nasal diameters and proportions. And so on. These other measurements and indices are just as standard as is the cephalic index.

In addition to criticising Mr. Jenness's selection of anthropometric criteria, I also object to his method of geographic comparison. By this I do not mean that the method is never valid or valuable. When we have a fairly complete and continuous geographical distribution of data such as exists for Sweden and Italy such comparison yields most conclusive results. But in comparing widely separated groups it is difficult to determine whether or not small differences are due to selection, environment, or intermixture. It is only when a mass of evidence points in the same direction that we can safely interpret it. The evidence under discussion is not of this type.

I do not wish to be understood as arguing for or against a Euro-

pean origin of "blondness" in the Eskimo. My criticism is confined to the method employed in trying to establish the truth or falsity of the theory. My point is that so far as anthropometric evidence is concerned the question of the European or non-European origin of "blondness" in the Eskimo stands exactly where it stood before Mr. Stefánsson and Mr. Jenness took up the discussion.

Let us hope that Mr. Jenness will give us a fuller presentation of the valuable data he possesses. It would be interesting if he could establish his three types anthropometrically. At least he should portray them photographically.

LOUIS R. SULLIVAN

FURTHER DISCUSSION OF THE "BLOND" ESKIMO

AFTER spending three years in the arctic and two of them among the Copper Eskimos for purposes of study Mr. Diamond Jenness returned in 1916 and has now published in the *American Anthropologist* a paper dealing mainly with their physical characters; after spending six years in the arctic and three of them among the Copper Eskimos, also for purposes of study, I returned in 1921 and, having now just read Mr. Jenness's paper,¹ I find some of the statements in it so much at variance with my own observations that I must call attention to them.

I do not follow Mr. Jenness in his reasoning about the head form of the Copper Eskimos, but if there is anything wrong with his scientific method (and it seems to me there must be) some one else will probably point that out.

But though lack of training may unfit me for judging Mr. Jenness in this particular, yet I am surely entitled to comment on his correctness of observation as to the "blondness" of the various Eskimo groups he deals with. Anybody is who has had the opportunity to examine the evidence and whose interest has led him to use his opportunities. I have had the opportunity, for I have seen every Copper Eskimo that Mr. Jenness saw and have seen most of them oftener. I have also seen many he did not see. I have had the interest leading to close observation—naturally, after being a member of one of the Stefánsson expeditions for three years and after reading his *My Life with the Eskimo*. Even before I went to the Arctic I had heard much debate as to whether there were any "blond Eskimos." I was from the first keenly on the watch for "tribal" differ-

¹ American Anthropologist, vol. 23, pp. 257-267.

ences in "blondness" between the various groups I saw in Alaska and Canada. My eyesight is good and I am not color blind. These qualifications fit me to pass on the main question of Mr. Jenness's paper—whether the "blond Eskimos" are markedly lighter in eyes, hair, beards, eyebrows, and skin than other Eskimos.

Stefánsson on his return from his second arctic expedition reported observing among the Eskimos of Prince Albert Sound and Minto Inlet (known as Kanghirgyuagmiun and Kanghirgjuatjiagmiun) a number of people having physical characteristics differentiating them from the Eskimos of the Mackenzie delta and Alaska. Through newspaper publicity these people received the name "blond Eskimos" though Stefánsson proposed for them (and for the rest of the people about Coronation Gulf) the name "Copper Eskimos," which name I note Mr. Jenness has adopted in his writings. Stefánsson also visited the Eskimos inhabiting southwestern Victoria Island and various parts of Coronation Gulf.

It was in Prince Albert Sound that Stefánsson observed the greatest amount of "blondness," this being less noticeable in Coronation Gulf and in southwestern Victoria Island.

Stefánsson sums up the physical characters of these people by saying: "Of something less than 1,000 persons, ten or more have blue eyes. Of those who have beards a good many have light brown ones. No one was seen with light hair of the golden Scandinavian type but some have dark brown and rusty red hair—the redness being usually more pronounced on the forehead than on the back of the head. Perhaps half of the entire population have eyebrows ranging from a dark brown to a light brown or nearly white; a few have curly hair."

Mr. Jenness without ever having visited the particular "tribe" in which Stefánsson found most of his blond people (Prince Albert Sound) states: "In summarizing the results in so far as they bear on the question of the blondness I have not considered it necessary to separate the Victoria Islanders from those of the mainland south of them." That Mr. Jenness sees no reason for differentiating between the peoples of the two districts amazes me no less after reading his arguments than before. He certainly would have seen reason for differentiating them had he visited the Prince Albert Sound people.

During the winters of 1919-20 and 1920-21, I lived with the Kilinigmiun of S. E. Victoria Island. These people are in closer touch with the Kanghirgyuagmiun than are any other "tribe," as every summer the majority of them travel inland to hunt caribou and

meet the Prince Albert Sound people for trading and dancing. Nearly every year some of the Sound people spend the year with the Kilinigmiun and similarly members of the Kilinigmiun cross over to the Kanghirgyuagmiun. So I have had an opportunity of meeting and talking with a number of the Sound people. Of them three men and one woman have light grayish eyes spotted (in one case at least) with green. Another of them, about 25 years of age, has reddish brown hair, nearly straight eyes of a light hazel brown, and a reddish moustache. He resembles a young German American friend of mine very closely. A boy of about fifteen has very fair skin, rosy cheeks, medium brown hair, and rather light brown eyes.

To sum up my observations I will say that there is a noticeable difference as regards the color of hair, eyes, eyebrows, and beards, between Prince Albert Sound people and any other Eskimos I have seen, and I have seen numerous persons from nearly or quite every Eskimo "tribe" from Bering Straits east to the southeast corner of Victoria Island. It is common knowledge among the natives of Coronation Gulf that their neighbors living to the north of them are much fairer than they. I have often heard them remarking about it.

I have at various times associated with Eskimos native to Alaska and the Mackenzie who have visited Prince Albert Sound either aboard whaling ships or as members of one or another of Stefánsson's expeditions. It is a commonplace among these western Eskimos that the Prince Albert Sound people differ from the western Eskimos and more nearly resemble white men.

It appears, however, that Mr. Jenness did see "sixteen light-eyed Copper Eskimos." He explains that this light color in their eyes is due to repeated attacks of snow-blindness. During six years and six months of close association with the Eskimos of Canada and Alaska I have never seen or even heard of a single case where a man's eyes turned blue from attacks of snow-blindness and I know of no reason why they should. But if snow-blindness turns brown eyes to blue or gray, have we any reason for believing that the Copper Eskimos are more susceptible or more exposed to snow-blindness than other Eskimos? Prince Albert Sound, Coronation Gulf, and Alaska have about the same conditions of light. The people shield their eyes with about the same mechanical protectors and have about the same precautions and beliefs that surround snow-blindness. Then, if the light eyes come from snow-blindness (and the light hair from sun

bleaching presumably) why do we find much "blondness" in Prince Albert Sound, medium blondness in Coronation Gulf, and little if any in Alaska? Of course Mr. Jenness says there is about as much blondness in one place as another, but this is flatly opposed by my observations and the opinion of the Eskimos themselves.

Mr. Jenness says that the Copper Eskimos have eyebrows "so sparse that it was difficult to detect their real color." I have not noted that the Copper Eskimos have eyebrows more sparse than the Alaska Eskimos and am inclined to the opposite view. But I have noted that the Copper Eskimo eyebrows are less conspicuous because they are lighter in color. The dark brown or black eyebrows of the Alaskans naturally stand out conspicuously.

So far as I can trust my eyes with regard to the people I saw, (which includes those seen by Mr. Jenness), so far as I can trust my knowledge of the Eskimo tongue (and I speak it now nearly as fluently as English), I know the following to be true:

First: The Prince Albert Sound Eskimos (whom Mr. Jenness says he did not see) have a higher percentage of "blondness" than the Coronation Gulf people, and the Gulf people have a higher percentage than the Mackenzie and Alaska Eskimos. I observed this and I heard the Eskimos say that they also had observed it.

Second: I know no influence—environment, local custom, or any other—that would expose one of the above peoples more than another to snow-blindness or any post-natal influence that might cause a change in eye color, hair color, or "slant" of eyes.

My observations on these points then agree with Stefánsson rather than with Mr. Jenness.

H. H. NOICE

Postscript

Alfred H. Anderson has lived on the Yukon, Alaska, and in north-eastern Siberia since the time of the 1898 gold rush. He spent among the Copper Eskimos the years 1916–1921 with Captain Joseph Bernard, who is mentioned in Mr. Jenness's "Life of the Copper Eskimos," (published at Ottawa in 1922, as part of the report of the Canadian Arctic Expedition of 1913–18).

Mr. Anderson saw all the Eskimos seen by Mr. Jenness as well as a good many others in that vicinity. The views expressed and the observations published by Mr. Jenness were so surprising to me that I wanted to get the opinion of someone else who also had seen the same people. I accordingly wrote to Mr. Anderson and have just received a letter in which he says: "Regarding the report of Jenness,

I must say that I think it very improbable that snow-blindness would cause brown eyes to turn blue. How does he explain the beards, hair and features similar to those of white people? Are they also caused by snow-blindness?"

H. H. N.

A LETTER FROM DR. GAMIO

THE following letter has been received by the President of the American Anthropological Association:

A la H. American Anthropological Association:

He recibido copia de la resolución leída en las minutas de esa respetable Sociedad referente a los trabajos arqueológicos efectuados en México por la Dirección de Antropología y especialmente a los de Teotihuacán y Templo Mayor de Tenoxtitlán, firmada por el Presidente de la misma, Dr. W. C. Farabee, y Secretario, Dr. A. V. Kidder.

En mi calidad de Jefe de la Dirección de Antropología y en nombre de los empleados que la forman tengo el alto honor de expresar nuestros profundos agradecimientos por la distinguida y fina atención que han merecido sus modestas labores por parte de esa respetable y culta Sociedad.

Es muy alentador para nosotros que los sabios americanos nos estimulen con su bondadosa aprobación. Nuestros esfuerzos serán mayores en lo sucesivo contando con su buena voluntad y apoyo moral.

El Director de Antropología,

M. GAMIO

BRIEF COMMUNICATIONS

NOTES ON STATE ARCHAEOLOGICAL SURVEYS

(From the report of the Committee on State Archaeological
Surveys, National Research Council,
Clark Wissler, Chairman)¹

ABOUT two years ago the National Research Council appointed a committee to consider the stimulation of State archaeological surveys in the United States. Attention was first directed to the Mississippi Valley, especially to the States of Indiana, Illinois, Iowa, and Missouri. In Indiana the State Academy of Sciences and the Historical Society appointed a State committee to cooperate, viz., Dr. Frank B. Wynn, Dr. Stanley Coulter, Judge R. W. McBride: for Illinois and Iowa similar State committees; Illinois, Dr. Berthold Laufer, Dr. Otto L. Schmidt, Dr. Charles L. Owen; Iowa, Prof. B. F. Shambaugh, Dr. E. R. Harlan, E. K. Putnam. The Missouri survey was initiated by the Anthropological Society of St. Louis and is under the direction of the following committee representing a number of societies and institutions: Dr. R. J. Terry, Leslie Dana, B. M. Duggar, R. A. Holland, George S. Mephram, Dr. H. M. Whelpley, J. M. Wulfig, Dr. C. H. Danforth. Satisfactory progress has been made in each of these States. The Indiana Survey is by the State under the direction of the State Geologist. In Iowa the work has begun under a grant from the Iowa Historical Society; in Missouri under a fund raised by the above-mentioned committee. As the results of all these surveys will be published, the outlook is stimulating.

In the course of its labors the National Research Council committee accumulated some information as to progress in a number of States, a digest of which is given here over the names of the organizations reporting. These reports are for the year 1921.

Alabama. A survey of the State has been initiated by the Alabama Anthropological Society, for whose history and work see pp. 489-492 of the last volume of the *Anthropologist*.

¹ As first organized this committee was headed by Professor Roland B. Dixon, but was later reorganized as follows: Clark Wissler *Chairman*, Roland B. Dixon, F. W. Hodge, Berthold Laufer, Amos W. Butler.

It is the purpose of the Society gradually to map every section of the State, to visit and survey every known site, when many others will be located, to record before it is too late the observations of all living persons in the State on its aboriginal people and customs. As one feature of its historical activities, each county in the State is being surveyed and studied for the purpose of recording all present-day places and place names which show in their etymology an aboriginal suggestion.

One feature of the work for 1922 is a reconnaissance of Russell and Lee counties in the eastern part of the State, in the old Creek country, at which time every school in the two counties will be visited, lectures will be given, and a collection of archaeological objects will be shown. A photograph of every mound and town site in each county will be made, and information gathered for the purpose of adding to the known history of the county as it applies to aboriginal times and conditions.—Alabama Anthropological Society, Peter A. Brannon.

Arizona. A systematic survey of the State and its environs is planned as a part of the scientific work of the University of Arizona and the State Museum. The work of the Director for the year 1920-1921 was as follows:

June to September, 1920, were spent in northern Arizona continuing the investigations of mesa pueblos and the pueblos of the great natural caves of the region. Some unexplored side canyons in the Segi and Nitsi groups in the northern part of the State were visited and ruins located. One cave pueblo in Bubbling Spring branch of the Segi was further excavated and material of the earlier cave people found beneath that of the so-called Cliff Dwellers. Some cave pueblos on Black Mesa near Kayenta were found and excavated. The region west of Navajo Mountain was further explored and a large pueblo found on Tayenda Mesa, a long, narrow, and lofty table-land stretching between Navajo Mountain and the Colorado River.

A field course of six weeks in the study of cliff pueblos was given during July and the first part of August. Several week ends during the year were spent in excavating and studying valley pueblos on a branch of the Gila River near Christmas, Arizona.

The summer of 1922 will be spent in the study of cliff and mesa ruins in southeastern Utah and the region lying west of Navajo Mountain. We are trying to complete the survey of northern Arizona

east of the Colorado River and of southeastern Utah.—University of Arizona, Byron Cummings.

California. Since 1901 the Department of Anthropology of the University of California has more or less systematically prosecuted archaeological survey work in the State. The Department was instituted to promote research, publication, academic instruction, and museum formation along the lines of archaeology, ethnology, and linguistics. Its local archaeological efforts have been therefore intertwined with its other activities. Among research students specializing in archaeology have been J. C. Merriam, Uhle, Nelson, Loud, and Outhwaite, from the pen of most of whom monographic reports have been issued. There is in the possession of the Department a much larger body of data, in the shape both of information and museum collections, than those already issued or described. The need at the present time is for a student who can for some years give all his time, or the greater part of it, to synthesizing the data already accumulated, with the supplement of new survey or expeditionary work at special strategic points. The present staff of the Department is too heavily engrossed with other duties to prosecute this work as it deserves. The means needed for further exploration could probably be supplied with little difficulty. The prime desideratum is a properly qualified man to take hold of this work without being distracted by other claims. There would be here a splendid opportunity for a volunteer. The materials already in hand are really quite considerable and the attitude of most citizens of the State is such that very cordial co-operation may be obtained from them.—University of California, A. L. Kroeber.

Colorado. In the fall of 1920, the Board of Directors of the State Historical and Natural History Society of Colorado, realizing the importance of research along archaeological lines, resolved to create a Section of Archaeology and Ethnology in the Society. At that time there were no funds available to carry on any active work, but an appeal sent to friends of the Society resulted in a small amount which seemed to justify engaging a man to take over the work. So, on March first, Mr. J. A. Jeançon, then Special Archaeologist in the Bureau of American Ethnology, Smithsonian Institution, assumed direction of the work in Colorado.

In conjunction with the University of Denver, the State Historical Society sent an archaeological expedition into Archuleta County, twenty-two miles west of Pagosa Springs. The results of this expedi-

tion have not been fully realized as yet, as there has not been sufficient time to study all of the material at hand, but this much is known: that the Pagosa-Peidora region is one of great archaeological importance. One of the most important results obtained has been the discovery of a sequence in house construction that is so well defined that, in the main, the consecutive steps can not be mistaken, from the earliest type of pit house to the large community house. New types of pottery, a definite system of decorative zones on the pottery, and many other features make this new field one of importance.

For 1922 an attempt will be made to make a complete archaeological survey of Archuleta County, as well as excavations at one or more sites of especial interest.—State Museum, Colorado, J. A. Jeançon.

Illinois. The Committee for this State is not ready to initiate a regular survey, but work was begun on the Cahokia mound group in 1921 by Warren K. Moorehead to stimulate general interest. As a result, the University of Illinois has come to the support of the work on Cahokia, which it is hoped will develop into a definite State program.

Indiana. During the past year we have undertaken an archaeological survey of Indiana to be carried on in connection with our survey of the natural economic resources of the State. We have covered about four counties in the field and located all of the archaic deposits which we were able to find. This survey was very thorough, as we covered the territory section by section. We have also prepared a map, showing all of the known archaic deposits of the State and, in connection with the Historical Commission, have prepared a questionnaire to be sent to people interested in either historical or archaic research, requesting that any information which they have in reference to historical or archaic deposits be sent to the two departments respectively. We are also preparing county maps which will be sent to these parties, asking them to make definite location of all such deposits on these maps.

Aside from this work we have also during the year carried on some special investigations, having excavated one mound in Lawrence County and obtained a skeleton that is in a very good state of preservation, nearly all parts having been collected. This mound was laid out in the form of a square, the lower part being divided into vault-like areas by the use of pieces of a thin-bedded limestone. The skeleton was obtained from one of these vaults. The upper

portion of the mound consists of loose sand, in which bodies had been buried promiscuously. We are not at the present moment ready to make a suggestion as to the age of the skeleton obtained but believe it to be much older than the time of burial of the remains of the more recent Indian occupants of Indiana.—Division of Geology, Department of Conservation, W. N. Logan.

Kansas. There are important archaeological remains in Kansas to be investigated and determined. In the fourteenth volume of the *Kansas Historical Collections* is an article on the "Early Indian Occupancy of the Great Plains." We suspect that all of the Great Plains country was once occupied by the Caddoan linguistic family, but a matter of this nature must be settled finally by a study of archaeology. Unfortunately, few facts in that field are available. We have not made even a beginning in this Society, being hampered for want of funds. Though we have many archaeological specimens and some of great value, no classification has been made and no means provided for exhibiting them. Yet Kansas is rich in archaeological remains.

On the side of ethnology the writer has done most of the work in the State, having gathered all of the Wyandot linguistic material which could be obtained from the Wyandots now living, or living within the last thirty years, the whole forming a manuscript of some 200 pages. Also, a brief Shawnee vocabulary was obtained from David De Shane who lived near Seneca, Missouri, but who had lived at one time in Wyandotte County, Kansas, when the Shawnee occupied that country. In the writer's *History of Kansas* is a chapter on the Indians once inhabiting this State.—Kansas State Historical Society, William E. Connelley.

Nebraska. Nebraska has been interested in the archaeology of the State for some years. A systematic survey of the eastern third of the State has been accomplished through the office staff of the Nebraska State Historical Society and charts of many of the village sites have been made. Descriptions and the known history of these sites have been printed in various reports and the Museum contains numerous relics found on them.

The flint quarries at Nehawka in the eastern part of Nebraska have been studied and a cross-section of one quarry pit has been made. The flint deposits on the Republican River in the southwest part of the State have been studied. The ruins of ancient villages near Fullerton in Nance County, have been explored and a few of the

many "mound houses" have been cross-sectioned for study. We hope, in the near future, to take up a systematic study of the area immediately west of this explored area and continue to the western line of the State. Many isolated points as far west as North Platte have been reported, but there are others in the same area which will be explored and plotted at the same time.—Nebraska State Historical Society, E. E. Blackman.

New England. About the year 1912 plans were made for intensive work in the State of Maine, the region being unknown except through Willoughby's, Loomis's, and Young's researches. Our field parties traveled by canoe, a plan that might not work outside of New England, but we found it very satisfactory here. In fact, better results are obtained by moving down a river in canoes than by proceeding by automobile. We have tried both methods. Exploring by means of canoes has its distinct advantage in that one is traveling as the Indians did and is apt to find more sites than when following the various roads, most of which are back from the water. We generally went to the head of a river and worked down. This was preferable to ascending a stream. Along the seacoast we used motor boats or other larger craft.

The above is our detailed method of procedure. We mapped all our sites on United States Geological Survey sheets. During the winter we examined books, colonial or museum records, for sites others had found or historic Indian sites, and entered these. Many local societies and individuals cooperated with us in these compilations. In all eight seasons were given to this survey, the results of which have been recently published.

The past year we had a small appropriation and did not attempt field-work although the writer visited various museums and societies in Massachusetts and Connecticut and arranged for cooperation next year. The spring and summer of 1922 we expect to do considerable work in Connecticut and southern Massachusetts. We will not attempt thorough exploration of a given area but rather ascertain where the large sites are, test several of them, and do more extensive work in future years. Local societies will probably furnish part of our transportation, but in the main we will depend on canoes.—Warren K. Moorehead.

New York. New York began its survey of the archaeological localities within its borders in 1905, leading in 1906 to the establishment of the office of Archaeologist of the State Museum. The work

is financed from the appropriations made for the New York State Museum and the material results deposited in its collections.

Three plans have been followed, though in reality all three are interrelated. The Museum began by exploring and excavating important sites without regard to culture. If a site seemed of special interest and likely to yield information and artifacts it received the attention of the season. The second plan was to group sites according to their culture and to explore specific areas. The third plan has been to list all of the known sites in the State and to search for others, so far as possible making a note of the probable culture.

As a result of this work the survey has determined the general localities and the chief characteristics of several occupations. The latest is the historic Iroquois in central and western New York and the Algonkian along the coast. Using these as datum we have been able to chart the successive occupations of the several areas within the State. By general areas, these are broadly as follows. (In reading these lists note that the higher the number the earlier the date.)

Western New York

1. Historic Iroquois (Seneca), tributary Algonkian peoples
2. Seneca and others who followed the Erie and Neutral
3. Erie, Neutral, Seneca, Iroquoian indeterminate
4. Algonkian, various tribes
5. Earth-work builders with pottery between Algonkian and Iroquoian
6. Mound-Builder-like sites
7. Algonkian (?)
8. Early Algonkian (?)
9. Indeterminate

Central New York (south to the Pennsylvania line)

1. Historic Cayuga, Onondaga, and Oneida
2. Andaste in the south along the Susquehanna and tributaries
3. Algonkian about the Finger Lakes
4. Mound-Builder-like
5. Algonkian
6. Early Algonkian
7. Algonkian (?)
8. Eskimoan (?)
9. "Red Paint" (?)
10. Indeterminate

Northern New York and Mohawk Valley

1. Iroquoian (in Jefferson County, early Onondaga)
2. Algonkian
3. Early Algonkian
4. "Red Paint" (?)

5. Eskimoan (?)

6. Indeterminate

(Contemporaneous with 3, in the Mohawk Valley there were "stone grave" people.)

Southern New York and Coast

1. Algonkian tribes

2. Iroquoian influence

3. Pre-Colonial Algonkian (Iroquoian traces)

4. Early Algonkian, certain Eskimo-like traces (?)

5. Indeterminate

Much remains to be done in the State, but with only one member of the archaeological staff and occasional field helpers, often without training, the task of making the survey seems a severe one; notwithstanding, the results have amply repaid the effort.—New York State Museum, A. C. Parker.

Ohio. The specific aims of our State archaeological survey as projected and carried out in past years are to work out the various cultures formerly occupying our State and to trace them from the time they came into the State through the various river valleys. By tracing out the inhabitants of the Paint Creek valley, for instance, and comparing these inhabitants with others of the State we will be able, no doubt, to trace their movements. Our examination of the Tremper Mound on the lower Scioto, the discovery that the great Hopewell culture was represented there, and a study of the mound and use of the site led me at once to surmise that the work at Mound City by Squier and Davis was not complete, and this caused me to take steps to secure these mounds. We fully expected to be compelled to condemn the property in order to take possession, but, the war coming on, the Government took the property for Camp Sherman. As soon as the Government had charge of it, we at once solicited the aid of the War Department in carrying out our project of examination, which Department did all within its power to help so that in the end we were able to examine in toto the entire mound group. Later the Department turned over to us the site of the Mound City Group to be made into a free public park. The mounds will now be fully restored in accordance with the early surveys and thus made accessible to visiting archaeologists.

As stated before, the aim of our State archaeological survey is to work out as many of these great sites as possible and to that end we have arranged for our next year's work in the Paint Creek valley, particularly the Seip Group. The mound we anticipate working upon

is 250 feet long, 150 feet wide, and upwards of 30 feet in height. We believe that the examination of this particular mound will give us new ideas concerning the Hopewell culture.—Ohio State Archaeological and Historical Society, W. C. Mills.

Tennessee. A general survey of the State has been conducted by Mr. W. E. Myer with some assistance from the Bureau of American Ethnology. All of the known sites in the State have been mapped and descriptive notes for the same prepared for early publication.

Wisconsin. The Wisconsin Archaeological Society, founded in 1899, is a trustee of the State and has at present a membership of about five hundred of the most representative men and women of the State. It is cooperating with all of the various scientific and educational organizations and institutions of Wisconsin.

Meetings are held in the Milwaukee Public Museum, Milwaukee, on the third Monday of each month from October to June. Illustrated lectures are given at each meeting. Sectional field meetings are held during the summer at Silver Lake, Waukesha County; Devils Lake, Sauk County; and Koshkonong, Jefferson County.

Archaeological surveys have been completed in the Lake Monona region in Dane County, at Rock Lake in Jefferson County, and at Fox Lake in Dodge County. Surveys and researches have been continued in Columbia County, at Lake Kegonsa in Dane County, and in the Silver Lake region in Waukesha County. Additional archaeological data have been collected in Burnett, Clark, Wood, Kenosha, Waukesha, Door, Winnebago, and other counties.

Mounds have been explored at Crystal Lake in Columbia County, Rock Lake (at Lake Mills), and near Kingston in Green Lake County.

The following mounds have been permanently preserved: A group of twenty-eight conical, linear, and effigy mounds on New State Soldiers' Hospital grounds, Farwell Point, Lake Mendota; a panther type effigy mound on the Y. M. C. A. camp ground, Morris Park, Lake Mendota; a group of ten conical, linear, and effigy mounds on the new Black Hawk Country Club grounds at Mendota Heights, all in Dane County; a conical mound in the public park at Little Clam Lake, Burnett County; a row of conical mounds at Aztalan, Jefferson County.

Three mounds have been marked with metal tablets: Lynx type effigy mound in Devils Lake State Park (June 11); Turtle Mound on Milwaukee County Boy Scout camp grounds, Silver Lake, near Oconomowoc (July 17); bird effigy on Hoard Hotel grounds, Lake Koshkonong (August 26).

Lectures have been given on the Wisconsin Indians and on archaeology during the summer session of the University of Wisconsin, and the State Historical Museum has conducted an annual archaeological excursion of students. Other items of interest are the assumption by the Winnebago County Archaeological and Historical Society of entire charge of the Oshkosh Public Museum, and the removal of the Potawatomi "Spirit" stone from Superton, Forest County, to Madison for preservation.—Wisconsin Archaeological Society, Charles E. Brown.

MEANING OF THE WORD DAKOTA

MUCH speculation and discussion have been given to the possible meaning of the word "Dakota," the name of the most numerous and important nation of the Siouan linguistic stock. Most commonly it has been said that it means "allies" or "friends." From even a slight consideration of the etymology and of the native use of the word it would appear that it can not mean "friends" in the ordinary sense of the term. And even more certainly it can not mean "allies," for it refers only to the people of the one nation, and not to any alliance of nations. At all events it is a word so ancient that its derivation is difficult to trace. It may be that some light on its origin and meaning may be shed by philological comparison of the Dakota language with its cognate languages, for example the Omaha. This line of inquiry suggested itself to me upon finding in a very ancient Omaha song a word which appears to be very closely related in use and meaning with the Dakota word *dakota*. The Omaha word in question is *endakutha*. It occurs in some of the songs of a very ancient and strictly limited society in the Omaha tribe, called the Pugtho^a Society. The Pugtho^a was a society of chiefs. It ceased to exist about the middle of the nineteenth century. One of the songs of the Pugtho^a is "Endakutha wahatanga eame." The word meaning "friend" in common use in the Omaha language is *kageha*; but it is said that this word *endakutha* is an ancient and obsolete word for "friend," that it is the word for "friend" in the sacred priestly language. The exact meaning of the word is now lost. A word for word translation of the ancient song just quoted is "Endakutha (friend) wahatanga (shield) eame (they say, or it is said)." From this it might appear to be in the form of eulogy of some person by the name of Wahatanga as a friend (of the people), or as declaring that a friend is a shield. Or

possibly the real meaning is not either of these, but there may be a third rendering. On this point more will be said presently.

Another ancient Pugtho^a song is

Ouhan thete nide tho.

Endakutha nide tho.

It is said this song was always sung before the waiters served the food at a feast of the Pugtho^a Society. The word *ouhan* means "cooked"; *thete* means "this"; *nide* means "change or transformation in water by means of heat"; *tho* is simply the rhetorical sign of the close of the sentence; *endakutha*, as was said above, is an obsolete word of the ancient Omaha language, or a word of the Omaha sacred language, meaning "a friend." The rendering "Friend, the food is cooked" has been offered as a translation of the song "Ouhan thete tho. Endakutha nide tho." But this hardly seems to be an adequate rendering of the meaning and content of the words of the song, for it claims to render in the statement of one sentence what required two sentences in the original. Such a rendering seems to be without rime or reason. It seems to me the secret may be that we have in this song an example of versification in Omaha poetry by the rhythm of parallelism, a couplet the first member of which gives a statement of obvious fact set off against a statement of mystical fact in the second number.

On finding that the ancient Omaha word *endakutha* meant friend or friends, or possibly an association of friends or of persons of kindred spirits, it occurred to me that there might be an affiliation in origin and signification between this obsolete Omaha word and the equally ancient word *dakota* in the Dakota language, a language which is cognate to the Omaha. The form and sound of the word *dakota* suggested its possible kinship to the word *endakutha*. Then I thought of the modern Dakota word for friend, namely *koda*, which becomes *kola* in the Teton or western dialect. Then I thought of the regular consonantal sound shifts which do occur in strictly regular order throughout the range of dialects of the Dakota language and of the Omaha language, as *d* in the eastern or Santee-Dakota dialect becomes *l* in the western or Teton-Dakota dialect, and *th* in the Omaha language. For example, the word *mdaska* in the Santee dialect becomes *blaska* in the Teton dialect of the Dakota language and *bthaska* in the Omaha language.

Now let us again consider the song

Ouhan thete nide tho.

Endakutha nide tho.

Here we have two sentences in each of which the predicate is the same word *nide*. In the Dakota language the word *nide* is found also in ancient usage, and it has reference to the property which water has of self-transformation in the presence of varying degrees of temperature into solid, liquid, or vaporous form while remaining the same essential substance. This appeals to the mind as a mysterious property. Now the first verse of the Omaha couplet, "Ouhan thete nide tho" is rendered "This food is cooked (by boiling)," i.e., changed or transformed. This is a statement of an obvious fact. The second verse of the couplet, "Endakutha nide tho," appears to be a parallel verse. But what is the meaning? If it simply means "A friend (or friends) is changed (or transformed)," it does not seem to make any sense. But how will it be if taken as a statement of a mystical fact set off in parallel with the obvious fact stated in the first verse? In that case both the words *endakutha* and *nide* must be taken in their mystical sense. In this sense what shall be the meaning? So interpreted *endakutha* would have, not the obvious meaning of friend or group of friends, but a concord or sodality of persons united in the bonds of a mystic fraternity, a select group or class, a chosen people.

And in the mystic sense of the word, *nide* as applied to this mystic fraternity may well signify the inherent property of this select group of people, in the presence of the mysterious Power in which they rest and confide, to do and accomplish wonderful things, and beyond ordinary expectations, or, as expressed by the Apostle Paul in his second letter to the church at Corinth, "to be changed from glory unto glory."

Now let us again consider the meaning of the first song quoted, namely, "Endakutha wanatanga eame." The literal meaning would appear to be either "It is said Endakutha is a shield," assuming that Endakutha is the name of a hero who is acclaimed as a shield or protector of the people, or else we may take it to mean "It is said (or they say) Wahatanga is a friend (of the people)," granting that Wahatanga is the name of a popular hero. But neither of these obvious renderings would seem to be adequate to the purpose of a song to be used in the celebration of a solemn religious ceremony such as was this feast of the Pugthoⁿ Society. But if we render it according to the mystic sense of the words it may well be a devotional hymn in worship of the divine Power on which the chosen people Endakutha, depend, and under whose protection they are preserved, and by whose strength they endure and prevail. In this sense the meaning

may be "It is said (the divine Power) is a shield to the chosen people," or "They say (the divine Power) is a shield to the chosen people," or "Let all now say (the divine Power) is a shield to the chosen people"—Endakutha (the chosen people), wahatanga (shield), came (they say). Thus it may be a devout expression similar to that of the Hebrew psalmist when he sang "Jehovah is my strength and shield," or again when he sang "Thou, Jehovah, art a shield about me," or again "O Israel, trust thou in Jehovah: He is their strength and shield."

From my study I conclude that the word *dakota* of the Dakota language, and *endakutha* of the cognate Omaha language, both being very ancient words, are derived from the same root, and that they do contain the concept of a group or society of friends, but not in the ordinary sense of the word friend, rather in the mystic sense of a peculiar people.

MELVIN R. GILMORE

ANALYSIS OF PRE-COLUMBIAN PIPE DOTTELS

THE American origin in and pre-Columbian use of tobacco has recently been questioned. It occurred to the writers that definite evidence in the matter might be secured by the analysis of the dottels remaining in ancient pipes. Although a number of chemists who were consulted about the matter stated that the chances were very small that any nicotine which might once have been present could survive for so long a period, the experiment of having a chemical analysis made seemed worth while.

The material selected comprised two dottels from Basket-Maker pipes kindly contributed by the Museum of the American Indian, Heye Foundation, together with the "cake" from a pipe excavated by the Peabody Museum Expedition from a Basket-Maker site at Savodnecchee, Arizona. The material was given to a well-known firm of analysts, who made a very careful chemical and microchemical investigation. The preliminary tests gave what appeared to be a faint indication of nicotine, but further corroborative tests by other methods failed to confirm this, and the report concluded by stating that "we are forced to conclude as a result of a thorough and exhaustive investigation that none of the samples you sent us contains any nicotine."

The result of the experiment was thus wholly negative, and the analysis neither proves that tobacco was smoked in these ancient

pipes, nor that it was not smoked, since the failure to detect nicotine may be due to the fact that it was not tobacco which was smoked, or to the fact that the nicotine derived from tobacco which had been smoked had wholly disappeared in the course of time.

Although the experiment was thus inconclusive, it was thought of some interest to put on record what is believed to be the first analysis of this sort.

ROLAND B. DIXON
JOHN B. STETSON, JR.

ANTHROPOLOGICAL NOTES

ORGANIZATION OF A CENTRAL SECTION OF THE AMERICAN ANTHROPOLOGICAL ASSOCIATION

THE first meeting of the Central Section of the American Anthropological Association was held at the Field Museum of Natural History, Chicago, Illinois, on April 21, 1922. Dr. Berthold Laufer, as chairman of the Provisional Committee, extended a word of welcome to the meeting and recited briefly the events which have led to the formation of a branch or section of the American Anthropological Association in the middle west. The organization of local branches in affiliation with the parent Association was authorized by an amendment passed by the American Anthropological Association at its Brooklyn meeting. The purpose of the Central Section is to unite persons interested in anthropology who reside in the middle west, to provide them with a medium for regular meetings, to promote the cause of anthropology in general, and to stimulate research in the archaeology and history of the middle west in particular.

The morning session was devoted to organization and the election of officers. A constitution was adopted, and the following officers elected: *President*, S. A. Barrett, Director Public Museum, Milwaukee; *Vice-Presidents*, W. C. Mills and Chas. E. Brown; *Secretary* and *Treasurer*, Ralph Linton;¹ *Council*, Berthold Laufer, Frederick Starr, Alanson Skinner, George R. Fox, L. B. Wolfenson, Chas. Owen, Chas. G. Schoewe, E. K. Putnam, Chas. R. Keyes, Edward Sapir, M. R. Gilmore, A. E. Jenks, and Hutton Webster. Berthold Laufer, Frederick Starr, Alanson Skinner, George R. Fox, and L. B. Wolfenson were elected to form an executive committee to cooperate with the officers in the management of the Section.

Votes of thanks were extended to the Field Museum of Natural History, to the Department of Anthropology of that Museum, and to Berthold Laufer, Otto L. Schmidt, and Edward E. Ayer. The members of the Central Section then adjourned for luncheon at which they were the guests of Edward E. Ayer.

¹ The position of Corresponding Secretary, provided for in the constitution is left vacant for the present, the duties of the office being performed by the Secretary-Treasurer.

The afternoon session was devoted to the reading and discussion of two papers, one by Fay-Cooper Cole on his projected trip to Borneo and Sumatra under the auspices of the Field Museum of Natural History, and the other by Ralph Linton on the results of the Marquesan Expedition of the Bishop Museum of Honolulu, Hawaii.

Prof. Frederick Starr of the University of Chicago then took the members to the building of the Chicago Academy of Sciences, where he gave an interesting talk on a collection of souvenirs of Mount Fuji (maps, color prints, paintings, and books) obtained by him in Japan and temporarily exhibited in the rooms of the Academy.

The members of the Section then adjourned to the Union League Club for dinner, where they were the guests of Dr. Otto L. Schmidt. After dinner the Section was reconvened, and Dr. Otto L. Schmidt elected an honorary member.

The Section then visited the building of the Chicago Historical Society, where Milford G. Chandler exhibited his collection of Indian objects and rendered selections of Indian music on the flute.

An offer of the use of the Field Museum of Natural History as a permanent headquarters for the Central Section, made by Mr. D. C. Davies, Director of that institution, was accepted by the Central Section.

The new organization has been well supported by middle western Anthropologists. On Aug. 1st it showed an enrollment of thirty-two members. Seventeen of these are former members of the American Anthropological Association while the remaining fifteen have not previously been connected with that organization.

CONSTITUTION OF THE CENTRAL SECTION OF THE AMERICAN ANTHROPOLOGICAL ASSOCIATION

1. *Name and Purpose.* The name of the organization shall be the Central Section of the American Anthropological Association. Its purpose shall be to promote the cause of anthropology by means of a closer fraternization of the students in the central states.

2. *Officers.* The officers shall be a president, two vice-presidents, a secretary-treasurer, and a corresponding secretary, to be elected at the annual meeting for a term of one year. There shall be a council of not more than twenty members elected annually. From this council five members shall be elected to form an executive committee. The management of the Section shall be vested in an Executive Council consisting of the officers and executive committee.

3. *Membership and Dues.* There shall be two classes of members. Members of the American Anthropological Association resident in the

middle west may become members of the Central Section by signifying to the Secretary their desire to be enrolled in it. They are exempt from dues to the Central Section. In joining the Central Section they forfeit none of their rights and privileges as members of the parent Association.

Persons who are not members of the American Anthropological Association, and who do not wish to join it, are eligible as Associate Members of the Central Section. Their election must be confirmed by the Executive Council. They are permitted to attend all meetings of the Section, but can not vote and are not eligible as officers. The dues for Associate Membership shall be one dollar (\$1.00) a year, payable in advance. Associate members may become regular members at any time by joining the American Anthropological Association.

4. The Central Section is autonomous in all questions pertaining to its own organization and affairs, and is free in the choice of time and place for its meetings. It shall recognize and support the *American Anthropologist* as its medium of publication, and the *American Anthropologist* shall publish a report of the proceedings at its meetings.

5. The secretary-treasurer of the Section shall be empowered to submit to the treasurer of the American Anthropological Association vouchers for the necessary expenses countersigned by himself and the president of the Central Section which shall be honored by the treasurer of the parent Association. Such expenses shall in no case exceed one dollar (\$1.00) a year for every enrolled member who is a member of the American Anthropological Association.

6. At least one meeting a year shall be held at a time and place to be designated by the Executive Council. The rules and precedent of the American Anthropological Association shall govern such meetings. Additional meetings may be held at the discretion of the Executive Council.

AMERICAN ANTHROPOIDS

At the April meeting of the National Academy of Sciences Dr. Henry Fairfield Osborn announced the discovery by Mr. Harold J. Cook, consulting geologist, of Agate, Nebraska, of what appeared to be the tooth of an anthropoid, an order of animal life hitherto supposed to be entirely wanting in the New World. Upon receipt of this tooth from its discoverer it was examined by Dr. Osborn and Dr. William D. Matthew and later examined and reported upon by Curator William K. Gregory and Dr. Milo Hellman, who concluded that "on the whole we think its nearest resemblances are with '*Pithecanthropus*' and with men rather than with apes." On the basis of these very careful studies Dr. Osborn decided to make this tooth the type of a new genus and species, *Hesperopithecus haroldcookii*. This discovery constitutes an event of the utmost importance for the science of anthropology no less than for geology. Future developments will be watched with keen interest.

"AN important contribution to the controversy over the Piltdown Skull was made by Profs. Elliot Smith and Hunter at a meeting of the Anatomical Society held on May 12, when they exhibited a reconstruction of the skull and its endocrinal cast. The reconstruction has been made by a careful and minute examination and correlation of the anatomical points of the fragments of the skull. The result confirms generally the reconstructions made by Dr Smith Woodward and Mr. Pycraft when first the skull was discovered, and agrees in showing the remarkable breadth of the skull and its low capacity, which is, in each case, placed below 1300 c. c. This later reconstruction, however, differs in one important particular. The occipital fragment assumes a more vertical position, with the effect that the skull is brought into closer relation with the skull of the anthropoids. As a result, the cranium falls into complete harmony with the chimpanzee-like jaw, and the paradox which has hitherto been a stumbling-block to the acceptance of the jaw as indubitably belonging to the fragments of the cranium now disappears."—*Nature*, June 3.

DURING July, A. I. Hallowell was enabled to continue his linguistic and ethnological investigation of the St. Francis Abenaki through the generous support of Messrs. George G. Heye and Frederick S. Dickson of New York, Vance C. McCormick of Harrisburg, F. H. Goff of Cleveland, and the Anthropological Society of Philadelphia.

MR. A. RADCLIFFE BROWN, known for his anthropological researches in West Australia and the Andaman Islands, has been lecturing during the past year at the University of Cape Town, where he holds the position of social anthropology. He is also honorary curator of ethnology at the Transvaal Museum.

MR. N. C. NELSON has left for Europe, where he will visit the chief centers of archaeological research in the interests of the American Museum of Natural History. His itinerary includes Norway, Sweden, Spain, and Belgium.

ON June 8 Dr. T. T. Waterman returned to Washington from field work for the Bureau of American Ethnology among the Haida and Tlingit Indians of the southernmost part of Alaska.

DR. RAYMOND C. DODGE, Professor of Psychology in Wesleyan University, is Chairman of the Division of Anthropology and Psychology of the National Research Council for the year 1922-23.

MR. JOHN L. BAER, who recently contributed an article to the *Anthropologist* on bannerstones, has been continuing researches in the field along the same line.

MR. JOHN P. HARRINGTON, Ethnologist in the Bureau of American Ethnology, returned to Washington on July 6 after a most successful season among the tribal remnants of California.

PROFESSOR WILLIAM H. HOLMES and Dr. Aleš Hrdlička of the U. S. National Museum have been elected Honorary Associates of the Sociedad Cubana de Historia Natural "Felipe Poey" of Habana, Cuba.

COUNT BÉGOUEN has been named to succeed the late Emile Cartailhac as Professor of Anthropology in the University of Toulouse and Curator of Anthropology in the Natural History Museum.

DR. GEORGE P. DONEHOO, Secretary of the Pennsylvania Historical Commission, a student of the archaeology and ethnology of the state of Pennsylvania of long standing, has been appointed State Librarian and Director of the Pennsylvania State Museum.

MAY 1 Mr. Neil M. Judd, Curator of American Archaeology at the U. S. National Museum, left for New Mexico to resume direction of the Pueblo Bonito Expedition of the National Geographic Society; he returned to Washington late in September after a very successful season. During his absence Mr. John L. Baer served as Acting Curator of American Archaeology.

AT the second annual meeting of the Southwestern Division of the American Association for the Advancement of Science, held at the University of Arizona, Tucson, January 26-28, 1922, the following papers in Archaeology and Anthropology were presented:

Discovery of three skeletons of the Hohokam race in southern Arizona, a prehistoric desert people of the Southwest, by C. J. Sarle.

A prehistoric skull excavated near Tucson, by Robert F. Gilder.

Orientation of prehistoric house outlines near Bear Canyon, Tucson, Arizona, by H. B. Leonard and A. E. Douglass.

Yaqui ceremonial dances, by Mrs. Phebe Bogan.

Native American artists, by Edgar L. Hewett.

Life forms in the pottery decoration of the Pueblo area, by Kenneth M. Chapman.

Progress report in research in the Jemez region, by Wesley Bradfield.

Some archaeological studies in the neighborhood of Flagstaff, by L. F. Brady.

Under the section of History and Sociology R. E. Twitchell discussed "Pueblo land tenures in New Mexico and Arizona."

FROM an article in *Science* (March 17) it appears that from 1912 to 1921 inclusive 24 doctorates were conferred in Anthropology. The greatest number, six, was in 1915; in 1912 and 1919 there were none; in 1921 four.

DR. ALEŠ HRDLIČKA, Curator of Physical Anthropology in the U. S. National Museum, is to serve the Children's Bureau of the U. S. Department of Labor in an advisory capacity on matters relating to the field of physical anthropology.

APRIL 25 Sir Arthur Keith began the second series of a course of lectures on "Anthropological Problems of the British Empire," the general subject of the series being "Racial Problems of Africa."

DR. ROLAND B. DIXON, Professor of Anthropology at Harvard University, has been elected an honorary member of the Chapter of Phi Beta Kappa in that institution.

AT the close of the last academic year Dr. John C. Merriam received the honorary degree of Doctor of Science from Yale and Princeton Universities, and the degree of Doctor of Laws from Wesleyan; Dr. Livingston Farrand received the degree of Doctor of Laws from Princeton; and Mr Vilhjalmur Stefansson the same degree from the University of Iowa.

DR. P. E. GODDARD of the American Museum of Natural History, accompanied by Lieutenant G. T. Emmons of Princeton, left New York early in June for the North Pacific Coast, with the object of collecting specimens and authentic data to make possible an early completion of the North Pacific Coast Hall in the Museum.

AT the thirty-sixth annual meeting of the Iowa Academy of Science, held at Drake University, Des Moines, April 28 and 29, two papers on American archaeology were presented: "The new Albin inscribed tablet," by Ellison Orr, and "Decorative markings on some fragments of Indian pottery from Mills County, Iowa," by Paul R. Rowe.

ON April 24 Dr. Malinowski began a course of eighteen lectures at the London School of Economics on "The Sociology and Economics of Some Island Communities." This course embodies the results of an intensive study of the culture of the Papuo-Melanesian communities around the eastern end of New Guinea of four years' duration.

EARL H. MORRIS, in company with Charles L. Parnheimer of New York City is making a general reconnaissance of the Navajo Mountain region of New Mexico.

THE MEDICINE WHEEL

By GEORGE BIRD GRINNELL

THE so-called Medicine Wheel, in Wyoming, has long been known to a few white men and always to the Indians.

Yet many present day Indians appear almost to have forgotten even the vague stories that they have heard from an earlier generation.

Its first mention in type, so far as I know, is found in an account of a trip into the Big Horn Mountains, printed in *Forest and Stream*, vol. 45, p. 269, September 28, 1895, which gives the general location and a rough description of the wheel, as follows:

On the very top of Medicine Mountain can still be seen the so-called Medicine Wheel, the plan and general arrangement of which bear a striking resemblance to the famous Calendar Stone of Old Mexico. As the name implies, this Medicine Wheel is a circle composed of loose stones. In the middle of it is a hut (also of stone) from which spokes of stones radiate (like in a wheel) to the circumference, there terminating in smaller huts. It is said that these smaller huts were, during the religious ceremonies, occupied by the medicine men of the different tribes, while the larger hut in the center was supposed to be the abode of Manitou. The wheel appears to be of great antiquity.

In the *American Anthropologist* for January-March, 1903, Mr. S. C. Sims¹ published a brief account of it as "A Wheel-shaped Stone Monument in Wyoming," giving a figure which roughly indicates its appearance. Mr. Sims had little information about the matter, and his paper merely calls attention to the construction.

A number of people have visited the Medicine Wheel in recent years; but nothing seems to be known as to its history or the uses to which it was put. It is built on the flat-topped shoulder of a bald mountain on the western side of the Big Horns, just about timber line, or perhaps a little above it—perhaps 8700 feet. The shoulder, which is almost without soil, consists of a hard white or cream-colored limestone which weathers into slabs or flat

¹ Am. Anthropol., vol. 5, no. 1, n. s., p. 107, January-March, 1903.

fragments; and the wheel is made up of pieces of this rock arranged on the ground in a certain order. Because it has been disturbed by visitors and walked over and disarranged by wandering cattle, accurate measurements of it can not be given.

The wheel (Figs. 21 and 22) consists of a wide and somewhat irregular circle of large stones, which has a diameter of from seventy-four to eighty feet. In the center of this circle is an inner circle of large stones—piled up in a wall—about twelve feet in outside diameter and about seven feet inside, and from two and a half to three feet high (Fig. 23). From the outer side of the wall of this inner, the central, circle, twenty-eight lines of small stones, set close together, radiate to the border of the outer circle.

The arrangement of these stones justifies the term wheel, and the word medicine obviously refers to the mystery or "medicine" which enshrouds it. The outer circle of stones is considered the rim of the wheel, the central circle its hub, and the lines of stone running from the inner to the outer circle its spokes. The outer circle is not complete, for on its easterly side the rim of the wheel is interrupted for about two and a half feet, and this interruption furnishes an entrance or gateway into the circle. The opening actually faces a little south of east.

Behind, west of, and about twelve feet without the rim of the wheel, a little south of west from the opening in the wheel's rim to the east, is an oval construction of limestone slabs, nearly long enough for a man to lie down in (Fig. 24). It is connected with the outer circle—the rim of the wheel—by a line of small stones which seems to be a continuation of one of the spokes of the wheel. The wall of this small oval is continuous, there is no opening in it; but it is so low that it may be stepped over at any point.

Just without the outside circle of the wheel, and connected with it, except in one case, are four low circular or oval constructions with walls fifteen to eighteen inches high—enclosures in which a man might sit or recline. Two of these open toward the northeast, and all touch the circle, except the one to the southeast where the circumference of the wheel bends in a little bit. While these four exterior stations are not strictly in the direction of the four cardinal points, yet it may well be that they represent the

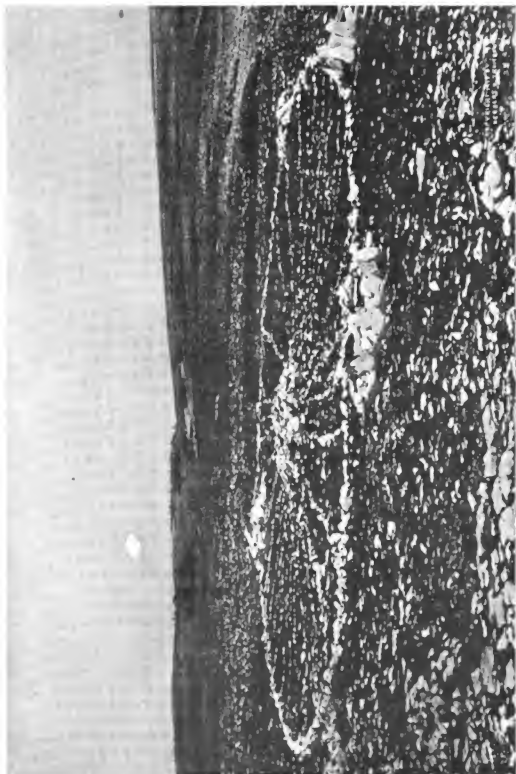


FIG. 21.—Medicine Wheel looking north. Copyright photograph by Herbert H. Thompson.

four cardinal points—the one to the south of the gap in the outer circle of stones representing the South, the next one, the West, the next, the North, and the fourth, near and north of the en-

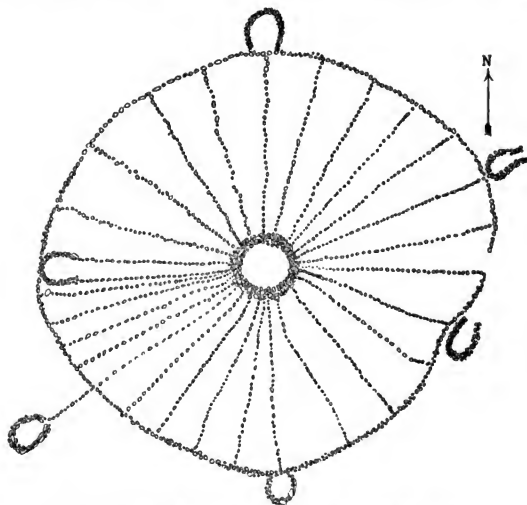


FIG. 22.—Plan of Medicine Wheel. Drawn by Thos. M. Galey.

trance, representing the East. Within the circle and adjoining it on the northwest side is a stone-walled structure nine feet deep and five feet wide, inside measurement, opening toward the center of the outer circle, which occupies in that circle the same position relative to the outer circle and to the central circle that the altar in the Cheyenne Medicine Lodge holds to the wall and the center pole. Two of the spokes run from the ends of the walls which form the sides of this "altar" to the central circle. This is the only building within the rim of the wheel, except the central circle or wall, and the rows of stones referred to as spokes.



FIG. 23.—Central circle of Medicine Wheel. Photo by Thos. M. Galey.



FIG. 24.—Enclosure west of Medicine Wheel, shown at left. Photo by Thos. M. Galey.

To the west of the wheel, and a little south of the oval which is connected with it by a line of stones, are two small circles of stones which are close to one another and which appear to have a relation to the main wheel. Scattered about at other points near the main wheel are six more or less irregular, and incomplete, circles of stones, roughly four or six feet in inside diameter, all opening toward the center of the wheel, and besides these other groups of stones, some of them irregular small circles, others consisting of two slabs of stone standing on their narrower ends, and in some cases with a third flat stone on top of the two. These last groups may have had a meaning or are perhaps merely the work of idle hands. The six irregular circles of stones outside the border of the wheel, and too distant from it to appear on the illustration of the plan, have been located and their direction and distance from the center measured by Mr. H. H. Thompson of Wyola, Montana, as shown by the following table:

One to southeast	107 feet from center
" " west of south	95 " " "
" " south of west	277 " " "
" " northwest	114 " " "
" " east of north	110 " " "
" " south	71 " " "

The last is very small, and perhaps does not belong in the series.

The Medicine Mountain no doubt takes its name from the mystery of the wheel. It is in the northwestern corner of the Big Horn National Forest, in latitude $45^{\circ} 49' 00.43''$, longitude $107^{\circ} 54' 7.67''$, and its elevation 9956 feet. However, as already stated, the building, or wheel, is not on the Medicine Mountain proper but on its northerly flat-topped shoulder which is much lower than the summit of the main Medicine Mountain. It is at some distance from water or from wood, and I saw no evidences of people having camped or remained near it for many years.

That in ancient times it was a place of resort for great numbers of people is clearly indicated by a very old and worn travois trail which, visible at a distance of two or three miles, looks like a broad white wagon road running from the lower foothills up over the side of the Medicine Mountain, passing along over its whole length, and descending on the other side to a narrow saddle which

it crosses and then climbs again to the flat where the Medicine Wheel is built (Figs. 25 and 26). On this travois trail there are no signs of recent use; yet it is apparent that, in times past, multitudes of people must have passed over it.



FIG. 25.—Travois trail ascending Medicine Mountain. Photo by Thos. M. Galey.

The antiquity of the wheel can not be doubted, yet it appears also that sacrifices have been made there in comparatively modern times. Some years ago Mr. H. H. Thompson found, under one of the stones in the spokes, two beads and two pieces of wampum. The beads are of European manufacture and have been pronounced Venetian beads of the fifteenth century. Mr. Sims, at the time of his visit, apparently found, resting on projecting slabs of the eastern side of the central circle—the so-called hub of the wheel—a bleached buffalo skull which had been placed there in comparatively modern times.

No living Indians that I know of profess to have seen the wheel, though many have heard of it. Up to within a few years, a Crow Indian, Split Ear, had visited it more than once. He is

no longer living. Among the Crows and other local Indians, however, various stories are said to be told about certain mythical people, usually "little people," who live under the ground and pass between their home and the upper air through a deep pit, or cave, formed by a great crack in the limestone to the west of the Medicine Wheel. These tales are altogether vague.



FIG. 26.—Travois trail, looking northerly toward Medicine Wheel. Photo by Thos. M. Galey.

Mr. Sims found no one in the Crow tribe who had visited the Medicine Wheel, but notes that the Crows declared that it had been made by a people that had no iron; in other words, that it is very old. There are other vague stories as to its builders. A little book entitled *The Sheep Eaters*,² which reads like fiction, states that the Medicine Wheel was built by the Sheep Eaters, and that the twenty-eight so-called spokes represent the twenty-eight tribes of the Sheep Eaters.

² W. A. Allen, D. D. S., New York, 1913.

The Sheep Eaters were a little group of the Shoshoni, estimated in 1863 to number about one thousand, but now extinct as a group and absorbed by the Bannocks. According to Granville Stuart,³ they were called Sheep Eaters by the other bands of Snakes, because they subsisted chiefly on the flesh of the mountain sheep. Mr. H. H. Thompson tells me that Sheep Eater Indians have told him that the wheel was built by their people.

Among the older Cheyennes the existence of the Medicine Wheel is well known. Some of them tell of one or more similar constructions, or of pictures on cliffs perhaps made in imitation of it.

I have discussed the Medicine Wheel with old Cheyennes, and particularly with Elk River, who probably was born about 1810-12. He was a man of good intelligence, of excellent memory, and of high character. He was extremely well informed as to all tribal customs and traditions. His mother as a young girl had lived in one of the permanent earth villages formerly occupied by the Cheyennes on the Missouri River.

Years ago, when I showed to Elk River Mr. Sims's figure of the Medicine Wheel, he said at once that it was the plan of an old time Cheyenne Medicine Lodge. The outer circle of stones he said represented the wall of the Medicine Lodge; the lines leading toward the center, the rafters—or, as he called them, the lodge poles—of the Medicine Lodge; and the small circle in the center of the large one, from which the so-called spokes radiate, represented the center pole of the Medicine Lodge. He added that the building to the northwest of the entrance, and within the circle and touching it, was the place from which the thunder came; and by this I understood him to mean what I call the altar—the place in the Cheyenne Medicine Lodge which is especially sacred, and in which is the buffalo skull.

Mr. Sims in his notice of the Medicine Wheel says that the Crow tribe could tell him nothing about the construction. He happened, however, to meet two Sioux Indians who were visiting the Crows and inquired about it of them. He says: "After

³ Montana As It Is, Granville Stuart, New York, 1865.

inspecting the diagram of it, which I had hastily drawn in order to make clearer the question asked them through an able interpreter, each of the Sioux drew a diametrical line through the wheel; and, pointing to one half, said 'Arapaho,' and then pointing to the other half, said 'Cheyenne.' Neither of these men acknowledged to having seen the wheel, but both had heard of it."

This testimony is interesting confirmation of the statement made by Elk River. The close relations of the Cheyennes and Arapahos are well known. According to the traditions related by the oldest people, the Cheyennes met the Arapahos on the west side of the Black Hills, three generations after they had first begun to live in the Black Hills country. Ever since that time, the Cheyennes and Arapahos have been close friends and allies, often living and camping close to each other for long periods, and constantly intermarrying.

The oldest Cheyennes have declared with great positiveness that the Arapahos were first seen—not having before been known—during the fourth generation after the Cheyennes came to the Black Hills. The Chief of the Arapahos at that time was named Curly (Bip-py), and the Head Chief of the Cheyennes was Goes In (Is-tsé-oh). As close friends in peace and as allies in war, the Cheyennes and Arapahos were constantly meeting each other and often united in holding the ceremony of the Medicine Lodge. This is the testimony given by people who knew both tribes fifty or sixty years ago.

The position of the stones, the outside circle, the inner circle, and the radiating spokes and the inside construction which touches the wall on the northwest of the circle, suggest at once, to anyone who has ever attended and observed that ceremony, a ground plan of the Cheyenne Medicine Lodge. As Elk River said, the outside circle of the stones seems to represent the walls of the Medicine Lodge, the inner circle, the center pole, and the so-called spokes of the wheel, the rafters of the roof, which run from the fork in the center pole to the supporting cross-pieces of the wooden framework which forms the wall of the Medicine Lodge. The position of the altar confirms the other points. If we imagine the Medicine Wheel to be the ground plan of the

Cheyenne Medicine Lodge, the oval construction to the west and connected with the large circle by a line of stones occupies approximately the place of the "lonely" lodge where the instruction is given to the Medicine Lodge makers and from which the Cheyenne Medicine Lodge women carry the buffalo skull down to the Medicine Lodge which is in process of being built.

In view of the statement made about this Medicine Wheel by Elk River, and the fact that it is a plan laid out on a flat surface which closely follows the ground plan of the Cheyenne Medicine Lodge, an extract from the story of Sweet Medicine, the Cheyenne Culture Hero, is not without interest.

It will be remembered that after various adventures including many attempts by the people of the tribe to kill him, Sweet Medicine at length returned to the neighborhood of the camp and showed himself in plain sight to all the people on six or seven occasions. On these occasions he was dressed once in the costume of a Contrary and on subsequent appearances in the costume of five of the bands of soldiers—namely, the Dog Soldiers, Fox Soldiers, Elk Horn Scrapers, Bull Soldiers, and Chief Soldiers. In other words, in these visits he foreshadowed the associations which he was to establish later. On each of these appearances, the story says, Sweet Medicine came from the East and went toward the opening in the circle; but, when near the opening, he turned to his left hand and went south to the southeastern part of the camp where he marked a circle. Then he passed on around to the southwest corner of the camp and marked another circle; then to its northwest border where he made another circle; then to the north side and made another circle; and then to the northeast side where he made the last of these circles.

On each of these appearances, he came from the same direction, took the same course around the camp, making the same turns and indicating the same circles; in other words, he marked five circles without the camp, and the five small stone circles or enclosures found without and not far from the border of the Medicine Wheel may possibly represent these circles which Sweet Medicine inscribed. The apparent coincidence of the positions of some of the circles with the story seems worth noting.

Mr. Sims's sketch of the wheel seems to have been drawn more or less from memory, as may be seen by comparing it with the plan here printed, which was kindly drawn by Mr. Thomas M. Galey. Another similar plan was made by H. H. Thompson. Mr. Sims's sketch does not indicate the opening toward the east which I believe was the entrance to the structure, nor does it show the place for the altar within the circle on the northwest side of the wheel. He gives the spokes as twenty-seven, whereas in fact they number twenty-eight—the precise number of the rafters that must be used in the Cheyenne Medicine Lodge.

As already suggested, there are in some other localities in the West monuments which have the same general appearance as this. On the Big Horn River just below old Fort C. F. Smith on the Big Horn Canyon, there is what looks like an incomplete monument of this kind. Then in northern Wyoming, near the trail used by the Cheyennes of the Tongue River Reservation in Montana when they visit the Shoshoni near Fort Washaki, the Cheyennes say there is still another monument of this kind. All these, it would seem, are worth looking into.

NEW YORK CITY.

HAWAIIAN RIDDLING

By MARTHA W. BECKWITH

MUCH in the psychology of the Polynesian has been shown to resemble closely that of the prehistoric civilizations which grouped about the Mediterranean. The taste for riddling is a minor but no less interesting example of this parallelism in mental habit and training, and the part played by the riddling contest in Hawaiian story is directly comparable with that which it plays in old European literary sources like the Scandinavian Edda or the Greek tale of Oedipus and the riddle of the Sphinx.¹ In some Hawaiian stories of the ancient past, the contest of wit is represented as one of the accomplishments of chiefs, taking its place with games of skill like arrow-throwing or checkers, with tests of strength like boxing or wrestling, and with the arts of war such as sling-stone and spear-throwing as a means of rivalry. It is played as a betting contest, upon the results of which contestants even stake their lives. There are definite rules of the game, a definite training preliminary to it, and the decisions, even in the case of an unpopular rival, seem to be judged openly and with impartial fairness. Such a wit-contest is called *hoopaa'paa*, a word somewhat grandly translated by Andrews, Thrum, and others, as the "art of disputation." In its narrower sense, the expert in *hoopaa'paa* depends upon the art of riddling. It is the object of this paper to describe this practice of riddling as it is

¹ For the Scandinavian riddling practice see Lay of Vafthrudnir (Vigfusson & Powell; Corpus Poeticum Boreale, I, 61), Lay of the Dwarf Alvis (I, 81), King Heidrick's Riddles (I, 86), perhaps also Lay of Grímnir (I, 69) and Loki's Altercation (I, 100). Compare also the riddling episode in the story of the Punjaub hero, Rasalu (Swynnerton, Romantic Tales from The Punjaub, 1903, pp. 250-254).

For the riddle of the Sphinx see Apollodorus, III, 8 (Loeb, I, 347).

An interesting discussion of European riddle forms is to be found in Mr. Rudolph Schevil's dissertation, "Some forms of the riddle question and the exercise of the wits, in popular fiction and formal literature," University of California Publications in Modern Philology, II (1911), 183-237.

represented in the modern folk-lore of Hawaii and in old Hawaiian tradition.

Although no Hawaiian riddles have, to my knowledge, ever been published, a very great number of both proverbs and riddles are current even today among the folk and differ in no respect from the metaphorical riddling or the word-play known all over the eastern continent, but so far unreported from American Indian tribes. The few specimens here set down were collected for me in Honolulu from a Hawaiian informant, Mrs. Mary Pukui, who belongs to an old Puna family, and translated by Miss Laura Green, whose thorough knowledge of the vernacular makes her an authority upon genuine Hawaiian matters.

1. *Ula o luna, ula o lalo, kaui mai ka oli.*
Red above, red below, with a cheerful call.
ANS. Rooster.
2. *Ekolu pa a loa ka wai.*
Three walls and you reach water.
ANS. Cocoanut.
3. *Kuu punawai, kau i ka lewa.*
My spring suspended in air.
ANS. Cocoanut.
4. *Kuu hale, hookahi ʻā-ā, elua puka.*
My house has one beam and two doors.
ANS. Nose.
5. *Kuu ana ula, ku lalani na koa kapa keokeo.*
In my red cave stand in rows white-clad soldiers.
ANS. Teeth.
6. *Ewalu ʻā-ā, hookahi pou, paa kuu hale.*
Eight beams, one post, my house is complete.
ANS. Umbrella.
7. *Kuu kanaka au-wae lewa.*
My man of the swaying chin.
ANS. Taro-leaf.
8. *Kuu wahi ia,² ilalo ka poo, iluna ka hiu.*
Some fish of mine, head downward, tail upward.
ANS. Onion.
9. *Ke kanaka e holoholo ana iloko o ke uki.*
A man who runs in the tall grass.
ANS. Louse.
10. *Puoa ka lau o ka niu, mohola ka lau o ka naenae.*
Pyramidal like cocoanut leaves, then unfolding like the leaves of the naenae (a kind of shrub).
ANS. Squid.

² Or, *He i-a ka'u*, I have a fish.

11. *Luu a aea, luu a aea, a hiki i ka waikaloo.*
Dive and rise, dive and rise, and then draw out.
ANS. To sew.
12. *Elua iliili, puni ka honua.*
Two pebbles viewing the whole earth.
ANS. Eyes.
13. *Kuu lahui, umiumi loloo.*
My nation, a long-bearded race.
ANS. Goats.
14. *Umeke pakakā, pōe pakakā, lilihihi ulaula, koko helelei wale.*
Shallow calabash, shallow cover, red fringe, broken calabash-net.
ANS. Earth, sky, rainbow, rain.
15. *Hele ka makua me ka kalakala, noho ke keiki me ka onaona.³*
The parent goes with his roughness, the child is left with his fragrance.
ANS. A garland of *hala* fruit.
16. *Kuu imu kalua loa.*
My oven that hides (its contents) forever.
ANS. The grave.
17. *He umeke no, he poi, he umeke no, he poi.*
A calabash and a cover, a calabash and a cover.
ANS. The jointed bamboo.
18. *Kuu ipu opaha, hau i ka pali.*
My misshapen melon hanging on a precipice.
ANS. Ear.
19. *Hookahi opihi koele, lau a lau na alinalina.*
One big dark *opihī* (a shell-fish) and thousands of yellow ones.
ANS. Moon and stars.
20. *Kuu waapa holo i na mokuuaina a pau.*
My boat which runs to all the islands.
ANS. Flat-iron.
21. *Kuu manu hookahi no iwi kaumaha.*
My bird with a single heavy bone.
ANS. *Kolea* tree, because *kolea* also means a bird, the plover.
22. *Ahihi, pu-iliili; kakahiaka, houhou; auakea, kau i ka lewa.*
In the evening, gathered; in the morning, pierced; in the forenoon, hung in the air.⁴
ANS. An *ilima lei* (a wreath of a certain kind of flower).
23. *Ai no, muku ana.*
Eating and grumbling.⁵
ANS. A water-gourd.

³ The hard upper part of the pandanus fruit (the parent) is cut off before stringing the remainder (which is softer and fragrant) into a garland.

⁴ The Hawaiians pluck the flowers the night before, string them in the early morning, and hang them up for sale or wear them about the neck.

⁵ As one drinks, the water gurgles.

24. *Kuu kanaka, ai ma ka hua, hoolepo i ke alo.*
My man, eating behind, voiding in front.⁶
ANS. An adz.
25. *Kuu imu, elua no pohaku moa.*
My oven has two stones for baking.
ANS. Two stones used for cracking pandanus nuts.
26. *Kuu waa, he umi ihu.*⁷
My double canoe has ten noses.
ANS. Feet, with ten toes.
27. *Kuu mau koi, nana e kalai na waa liilii ha waa kia loa.*
My hatchets carve out little canoes and long-masted canoes.⁸
ANS. Bare feet, large and small, going over a trail.
28. *Kuu wahi ia ili ole.*
My skinless fish.
ANS. Taro tops, often used, cooked as greens, in place of fish.
29. *He ua ka upena, he makani ke kapehu.*
The rain spreads the net, the wind drives it in.⁹
ANS. Candle-nut; it ripens after the rainy season and falls when the wind blows.
30. *Na ka ia make e hapai ka ia ola.*
The dead fish raises the live one.
ANS. The cowrie-shell used to catch squid.
31. *Pupuhilo i ka poo o ka o-o, lei haili oia manu; kuu manu la ewalu malama, i ka iwa la, lele.*
Gathered up like the tuft of feathers on the head of the o-o bird, proud adornment of that bird (?); my bird rests for eight months, on the ninth it flies.¹⁰
ANS. Cultivating a garden: clearing the ground, the owner's pride in his garden, the period of ripening, the eating of the fruit.

⁶ The Hawaiian plane bites into the wood, and leaves sawdust and shavings. Miss Green translates "littering in front," but I think this misses the point.

⁷ The fore-part of the canoe is called the "nose" (*ihu*).

⁸ The Hawaiians have observed that a bare-footed person forms a print in the shape of a hatchet.

⁹ Miss Green translates "cradles" and "scatters." According to Andrews's dictionary, the words used refer to net fishing, and this gives the proper figure.

¹⁰ Miss Green says, "The first part means pulling of weeds, gathering sticks and planting; the second is the owner's pride in his garden; the third part signifies the eight months taken for ripening, culminating by eating in the ninth." The first part of the translation seems to me obscure.

32. *Hala ka laau, make; pa ka laau, ola.*
Missing (the wood), it dies; piercing (the wood), it lives.¹¹
ANS. A torch of candle nuts.
33. *Kuu laau, huhi ke aa, ulu; kolo ke aa, make.*
My tree-trunk; when you pull its root, it grows; when you let it run, it dies.
ANS. An anchor.
34. *Kuu wahine, eha piko.*
My wife with four navels.¹²
ANS. A braided mat.
35. *Kuu ia, ai no, oni ana, ai no, oni ana.*
My fish, a taste and a wiggle, a taste and a wiggle.¹³
ANS. Baked candle-nut, used as a relish.
36. *Kuu ia, ai maloko kona unahi.*
My fish with its scales inside.
ANS. Red peppers, used as a relish.
37. *Kuu ia, nona ka honua.*
My fish possesses the earth.
ANS. *Honu*, turtle.
38. *Kuu ia, pa i ka lani!*¹⁴
My fish, it touches heaven.
ANS. *Palani* (a flat dark-brown fish emitting a disagreeable odor).
39. *Kuu ia, nona ka la.*¹⁵
My fish, possessor of the sun.
ANS. *Kohola* (whale).
40. *Kuu aho hilo loa.*¹⁶
My cord of long *Hilo*-grass.
ANS. Hilo district.

¹¹ Miss Green writes, "You may remember that the nuts are strung on thin, sharp strips of bamboo; unless it is constantly watched and the consuming nut *koe*-d or snuffed (?), the wood will burn out and the torch be extinguished, but if it is carefully manipulated, it catches the next nut and thus keeps burning."

¹² The mat-maker begins to braid at one corner. When the mat is completed one can not tell at which corner it was begun. Miss Green translates "with four corners."

¹³ Miss Green says that the word *ia* (flesh, commonly fish) in distinction from *ai* (vegetable food, commonly pounded *laro*-root) may also mean "relish." With this meaning it may include boiled greens, *luau*; or red peppers, *ni-oi*; or baked candle-nuts, *inamona*; or anything eaten with *poi*. If the question is asked, "*Heaha ko oukou ia?*" What is your meat? the answer may be any one of these, or even "*He paakai*," salt. The riddle describes the motion of the hand in taking a bit of the relish with the *poi*.

¹⁴ Miss Green suggests the rendering, "My fish! The stench reaches heaven!"

¹⁵ *Koho* means "to choose" or "possess"; *la* is the "sun."

¹⁶ This and the next six riddles are puns upon the names of the districts on the island of Hawaii.

41. *Kuu mau kupuna.*
My grandparents.
Ans. Puna district.
42. *Kuu lua u-u.*
My good red fish.
Ans. Ka-u district.
43. *Ka makani Kona.*
The south wind.
Ans. Kona district.
44. *Kuu lei hala.*
My pandanus wreath.
Ans. Kohala district.
45. *Kuu mau makua.*
My parents.
Ans. Hamakua district.
46. *Kuu hulu, kuu nae.*
My feather, my fish-net.
Ans. The fishes *pa-hulu* and *na-nae*.
47. *Palu aku au, hole mai oe.*
I lick and you scratch.
Ans. The fishes *upapalu* and *aholehole*.
48. *Piopia, kahakaha, lei a ka manu.*
Peeping(?), scratching, crown of the bird.
Ans. The place-names Wai-pio, Ke-kaha, Wai-manu.
49. *Kuu uahi ua, hele pu me ke kanaka.*¹⁷
My rain, accompanying man.
Ans. *Ua-ua-kaha*, stiff-necked or haughty.
50. *Luku ia ke alii, pio a ka manu.*
Blood of the chief, arch(?) of the bird.
Ans. The place-names Wai-luku, Hono-lii, Wai-pio, Wai-manu.

¹⁷ This and the next two plays on words are unsatisfactory in translation. Here the play is on the word *ua*. Of the next Miss Green says, "Only half of the answer is given; the other half is to be guessed." I take it that this means a riddling match. The first says, "*Luku ia ke alii*," and names two places near Hilo-Wailuku and Honolii. The man challenged answers with "*Pio a ka manu*," and names Waipio and Wai-manu, also near Hilo. Of the third Miss Green writes, "Quite untranslatable into English although I can see it in Hawaiian, being a double play on words. *Puna* is here mortar, or stone-coral coming from the sea (*kui*). The best I can do with it is to put it thus: When the house (*hale*) belongs to the mortar, it abides in the sea; when the house belongs to the sea, it abides in the mortar." Certainly this makes little sense in English. The reference is probably to the Hawaiian custom of considering sisters-in-law as wives and brothers-in-law as husbands in common.

51. *No ka puna ke hale, noho ia e ke kai; no ke kai ka hale, noho ia i ka puna.*

Ans. *Puna-lua* (plurality of husbands or wives) and *kai-koeke* (brothers- or sisters-in-law).

Fornander's collection of Hawaiian folk-tales recently published with text and translation by the Bishop Museum in Honolulu,¹⁸ is our chief source for knowledge of the treatment of the riddling contest in Hawaiian story. Turning to this collection, we find six tales in which such a contest is described in some detail. In two of them, the term *hoopaapaa* is expressly used to name the art. These six are:

- | | |
|----------------------------|------------------------------------|
| 1. <i>Lonoikamakahiki.</i> | Vol. IV, 256-323. |
| 2. <i>Pikoikaala.</i> | Vol. IV, 450-463. |
| 3. <i>Kipakailiuli.</i> | Vol. IV, 510-517; Vol. V, 398-405. |
| 4. <i>Kaipalaoa.</i> | Vol. IV, 574-595. |
| 5. <i>Kuapaka.</i> | Vol. V, 78-135. |
| 6. <i>Kapunohu.</i> | Vol. V, 418-421. |

Of these, the story called *Kaipalaoa*, or "The *Hoopaapaa* Youngster," is by far the fullest and most important. It tells of a lad whose father's bones, together with those of many other contestants, lie bleaching before the enclosure of a famous chief of Kauai noted for his success in riddling. The lad practises the art of *hoopaapaa* and in a long riddling debate outdoes all the wits of Kauai and avenges his father's death.

It will, I think, be possible to show that this story is the source of a similar episode in the legend of *Kipakailiuli* in which the hero visits Kauai and outwits a champion boxer, wrestler, and riddler, in the arts by which the Kauai chief has terrorized the island. The situations are similar. In both cases a champion from the district of Puna, in Hawaii, worsts a cruel chief of Kauai who has long terrorized the island. But in the episodic story, the elaborate word-contest is replaced by a couple of trivial riddles such as might easily be substituted by one unfamiliar

¹⁸ Fornander: Collection of Hawaiian Antiquities and Folk-lore, Memoirs of the Bernice Pauahi Bishop Museum of Polynesian Ethnology and Natural History, vols. iv-vi, Honolulu, 1916-1919.

with the story in full, but wishing to use the incident to complete the record of the hero's adventures.¹⁹

The other four riddling episodes seem to be independent. In the story of *Lono*, this famous chief of Hawaii visits the powerful chief of Oahu on purpose to engage in a betting contest, called *hoopaapaa*, and in every encounter wins over his powerful antagonist. In *Pikoikaala*, the demi-god of the Rat family bets against the champion rat-shooter of the royal family of Oahu, and wins through his skill in punning. In *Kuapakaa*, the son of a banished counsellor of the great chief of Hawaii wins in various betting contests with his father's detractors, until they are finally all put to death and his father reinstated in favor. An independent episode in the life of *Kapunohu* (whose legend is told in full in Vol. V, 214-225) relates how this hero is worsted at betting by the tricks of two young men whom he has formerly defeated.

Examining these stories in detail, we find that it is only in its narrower sense that the *hoopaapaa* contest is confined to matching riddles. Any test of superiority, it would seem from the contest, may be employed to place a rival at a disadvantage, especially a guest who comes as a stranger and sets up pretensions to equal rank with the established ruler of the district or island. In those stories in which the *hoopaapaa* contest is directly alluded to, the successful contestant is in this position of guest; and it seems to be legitimate by the rules of the game to take him at whatever disadvantage this isolation from his supporters involves. Unless he

¹⁹ The riddles, upon the answer to which the chief stakes his own life, are as follows:

Kai a puni, kai a lalo, hoe koena.

Plaited all around, plaited to the bottom, leaving an opening.

O kanaka i ku,

O kanaka i moe,

O kanaka i pelupelu ia.

The men that stand,

The men that lie down,

The men that are folded.

The answer is in both cases "a house." In the first riddle, "the house is plaited all around from top to bottom (with thatch) leaving an opening, the door"; in the second, "the sticks (of the house) are made to stand, the battens are laid down, and the grass and cords are folded."

is in a position to defend himself, he must never challenge whatever insult his host sees fit to put upon him. If he does challenge it, stakes are set and he must prove his claim to skill equal to that of his host by whatever tests of superiority he thinks he can meet. He is, however, at liberty to decline any particular test in which he knows himself to be unskilled. It is only the rash boaster who will attempt more than he can perform; the true hero knows his own strength. If in the excitement of the game he undertakes something beyond it, he must employ his wits to help him out. Moreover, he does not necessarily depend upon his own strength or skill; he is at liberty to call upon a follower to speak or act for him. For this reason, high chiefs gathered about themselves those skilled in any competitive art, and men who wished to attain distinction sought notice at their courts by challenging the seasoned wits and seeking to displace them in their lord's estimation.

In a number of stories, definite allusion is made to training in the art of the *hoopaapaa*. In the story of Lono-who-came-from-Kahaki, the boy, visiting his father's treasure-house, discards as worthless the implements of sport and the wooden war-club "fit only to poke hot stones out of an oven"; but commends the war-spears, sling, and the images of the gods. He says, "That makes three things in your keeping that are of value; I will take care of these things!" and he becomes expert with spear and sling, as also in wrestling. On the circuit of the island, he sees an old man with gray hair reaching below the waist whom he at first takes for a god, but, learning he is merely a chief's counselor, "What is the old man good for?" he demands. The attendants reply: "The counselor is a very great man in the king's court. He must be a man skilful in language, and whatever advice he gives to the king, the king will give heed to. He can predict the coming of prosperity to the land and to the people. He can tell whether a man, commoner or chief, will become rich or poor." Consulting the old man as to his own future, Lono is advised to take up the art of *hoopaapaa*. He proves an apt pupil and on his return home entangles all his playmates in argument, to his own great practical advantage. Says the story, "This made the third

thing that Lono-from-the-land-of-Kahiki was proficient in up to his death, and he caused no end of trouble for certain chiefs thereby."

Other Hawaiian tales speak more in detail of the requirements of the training for the *hoopaapaa*. Kaipalaoa, called "the *hoopaapaa* youngster," goes for instruction to an aunt who lives in Kohala. "She taught him all she knew relating to the profession; the things above and the things below, in the uplands and in the lowlands; the things of day and the things of night; of death and life; of good and evil. She taught him all that she knew, where-upon he was classed as an expert." Kuapakaa, son of a banished chief's counsellor, gets his training from his father. The story runs: "After Kuapakaa had grown up to the age when he could talk and think, Pakaa said to him: 'I want to teach you the songs relating to your master and also the general knowledge of all things; for it is possible that he will miss me and will come in search of me; if he does, I want you to be ready to meet him.' The course of instruction did not take many days for Kuapakaa was a bright boy and mastered everything in a way to give him a thorough knowledge of the different branches of knowledge." It would appear, then, from these descriptions that education for the wit-contest demanded a thorough objective knowledge of the physical world, with the names, attributes, and history attached to individual objects and the classes to which they belonged, together with the genealogies of chiefs and the names of places and their local peculiarities throughout the group.

The importance of the thorough mastery of his art to the expert in *hoopaapaa* is shown by the high stakes for which the game is played, which proceed to such extravagant lengths that not only a whole landed possession but even life itself is made to depend upon the outcome. The loser is regularly "cooked in the oven,"²⁰ probably, since cannibalism was not practised in Hawaii,

²⁰ The Hawaiian oven or *imu* is prepared by digging a hole in the earth, filling it with stones and kindling a wood fire over it to heat the stones. When all are well heated, a layer of stones is left on the bottom and the rest thrown to the sides. When the oven is filled, these are used to cover the top, and earth is then thrown over the whole.

in order the more easily to remove the flesh from the bones, which are then set up in token of victory. In *Kuapakaa*, the rivals who are conspiring for the hero's death say, "There is always one wager, our bones. If we beat you, you forfeit your life to us, and if you beat us, why, we forfeit ours."²¹ In the story of Lono, although the two chiefs have staked only their landed estates, Lono says to the counsellor whose timely arrival has won him the bet, "If you had not come today, I should have been cooked in the oven already prepared for me."²² When "the *hoopaa-paa* youngster" has beaten the Kauai chief's disputants, "The men were then all killed and cooked in the oven and their bones stripped of flesh."²³

The episodic account of the last contest is treated more elaborately in the story of *Kipakailiuli*. The king's crier proclaims the contest as follows: "All men are commanded to the chief's house to guess the chief's riddle. If solved, saved from the oven; if not solved, death in the oven. Not a man, woman or child, old or young, shall remain at home except the man who winks not when you stab at his eye with your finger. Whoever remains at home, his house shall be burned to the ground and the chief's wrath shall follow him and his family from parents to children, his kindred even to the most remote, and his friends. So shall punishment be measured out to anyone who remains at home this day!" When the champion presents himself, the chief says, "I have two riddles. If the right answers are given to them, I shall bake in the oven; if not, you will bake. These are the conditions." But the chief's crier has already advised the stranger, as follows: "'Come and stand before the people and when you see that the oven is hot enough, for I shall attend to the heat, give the answer to the first half. And when you see me lay the stones flat and throw some out to the edge, give the answer to the

²¹ Fornander, v, 128.

²² Fornander, iv, 314.

²³ Fornander, iv, 594.

second half. Then take hold of Kaikipaanaea and throw him into the oven.' ”²⁴

In both cases in which the *hoopaapaa* contest is named, the contestant carries a calabash containing articles of which he is to make use in the *hoopaapaa* contest—articles, that is, by which he can make good an improbable boast or meet any attempt of his host to put him at a disadvantage. In neither case are these objects of a supernatural character. In the story of Kuapaka, however, it is the possession of the “wind-calabash” containing his grandmother’s bones which gives the hero advantage over his rivals. “It was a real calabash, entirely covered over with wicker-work, plaited like a basket, and it was named in honor of Pakaa’s mother. . . . This calabash was given the name of Laamaomao because during her life-time the winds obeyed her every call and command.”²⁵

The legendary woman from underseas, Hinaaimalama, carries the moon in her calabash.²⁶ The Rat-man, wishing to go concealed to Hawaii, bids a friend “. . . get some *ie* vines and make a basket in the shape of a calabash for me to hide in . . . and you can say that the basket is for the safe-keeping of your god.”²⁷

On the whole, however, the challenger is represented as depending upon his wits rather than upon miracle in stocking his calabash. When Kaipalaoa, “the *hoopaapaa* youngster,” arrives off Kauai, he passes the chief’s canoes loaded with fish. Offered a canoe-load, he refuses all but two, which he selects with care; and coming to the bone fence proceeds to set them up in place of the chief’s taboo signals, which he tears down as a sign of defiance. The point of the substitution lies in the fact that the fishes’

²⁴ Cf. the account given by Mr. Weeks of a witch-trial on the Lower Congo. The man who is tried as a sorcerer, if he is obnoxious to his judges, is made to name rapidly the trees from which six different twigs are taken, or the names of ants running on the ground in front of him or of the birds sailing past. If he fails, he is condemned as a wizard and will be killed. John H. Weeks, “Customs of the Lower Congo People,” *Folk-lore*, XIX (1908), 417–418.

²⁵ Vol. v, 72.

²⁶ Vol. v, 267. “It was Hinaaimalama who turned the moon into vegetable food (*ai*) and the stars into fish (*ia*).”

²⁷ Vol. iv, 460.

names—"Twisted signal" and "Strong taboo"—are a challenge to competitive rank. There is some preliminary sparring. "The chief invites you to come up here, young bragger," calls the messenger. "The chief invites you to come down here, middle-aged bragger," retorts the boy. On his arrival at the door, the wits declare that he may stay outside. "Very good! then you must stay inside, never go out, rot there!" Again defeated, they invite him to enter, but take up all the floor-covering and throw down water. He good-humoredly confides to his calabash, "Say, you must sit down on the part of the floor that has a covering." Challenged to make his words good, he explains that the lower batton of the house is called the "bottom covering." The wits then proceed to make their section of the floor suitable for men of rank. They spread down fine grass, then mats from Niihau, and finally their handsomest bark-cloth. The calabash now comes into requisition. Puna, in the island of Hawaii, is noted for its fragrant plants. The stranger spreads out sweet grass, a mat woven of richly-perfumed pandanus blossoms, a scented bark-cloth dyed on both sides. When the chief's followers prepare a feast of roast pig and awa drink, he takes out a little wooden pig (probably of a kind used by priests in sacrifice), a bundle of sticks, a number of pebbles, and dramatizes a feast in miniature. When they place singers behind them to accompany their chants, he derides them by setting up a wooden mannikin to make the motions. In this way he successfully prevents his antagonists from putting him to shame at the outset of the debate.

At Lono's arrival at the court of the chief of Oahu,²⁸ a number of bets are engaged in between himself and his host, who attempts to catch him at his weakest point. In every case, in spite of the rashness of the venture, Lono outwits his host. The first bet is about a new name-chant which the chief has got from a lady-guest from Kauai. He has bidden each of his retainers to

²⁸ "The chief desire that urged Lono to make the journey (to Oahu) was that he might show his skill in his favorite profession of *hoopaapaa*. Hence he took with him his calabash known by the name of Kuwalawala. In this calabash, besides his clothes, he carried several of the things he used in the profession of *hoopaapaa*." Fornander, iv, 270.

commit a line as she recites the song and has then connected the lines one by one at his leisure until he has committed the whole. Unfortunately for him, the lady has omitted to mention that Lono, having enjoyed her favor for a night, has himself memorized the same chant in a single night, and is fully prepared to meet the chief's challenge. The next four contests take place on a fishing excursion, an art in which Lono is confessedly weak. Here magic saves the day for Lono. I am inclined to think that the story of the shark lured by Lono into sharkless waters; of his cutting up his old counsellor to provide hook, sinker, bait, and line; and of the fish from Puna with a wreath over its head, about which the first three bets concern themselves, are substituted for misunderstood puns, so at variance are they with the realistic spirit of the other contests. In the last bet, which concerns a racing contest back to port, Lono wins against overwhelming odds by slipping in by another route while his antagonist stops his rowers upon their oars to jeer at his expected defeat.²⁹ The final bet concerns the calabash which contains the bones of enemy warriors, each done up in its own bundle. Only a single one of Lono's counsellors can name each bundle, and he is supposed to be in Hawaii. His opponent knows this and ventures the bet. By good luck, the counsellor arrives just in time to save his master the stake, and Lono chants a jeering song at the expense of each dead warrior.

In all these examples, the wit-contest consists in making good a brag, or taking a dare, or answering jibe for jibe, or standing up against quizzing—in any of a number of quite useless competitive activities entered into merely for the fun of the thing, such as are common to any society in their moments of relaxation. The value of the stakes set, the prodigious odds against which the hero engages, these are the careless ways of chiefs; and sympathy for the winner is assured by pitting the adventurer against the arrogant chief who is surrounded by the advantages of his own court. But that which mainly supports the *hoopaapaa* contestant is his knowledge of words. Any boast may be made good by a successful pun.

²⁹ Compare Kuapakaa's defeat of his far superior rivals by placing his own canoe in the current caused by the eddy left behind the other, and thus riding triumphantly to shore unwearied. Fornander, v, 130.

For example, in the story of Pikoikaala, the Rat-man overcomes the champion rat-shooter of Oahu by wit in words. His antagonist shoots ten rats with a single arrow; he gets ten and a bat. "The bat must not be counted! It is not a rat!" cry the other's adherents. But by quoting an old saying

The bat in time of calm
Is your younger brother, O rat!

he claims the victory. Then he brags that he will hit a rat in the midst of a crowd. He shoots a dim-eyed old woman and wins the bet; for "When a baby is born he is called a *child*; when he grows bigger we call him a *youth*; when he stops growing he is a *full-grown man*; when he walks with a cane he is an *old man*; and when his eyes grow dim he is called *blear-eyed rat*. Then isn't she a rat?" Next he offers to shoot "a big rat sitting on the rafters," and hits the top batten. "That is not a rat!" "O yes, it is! It is called 'back of a rat,' as one says in house-building, 'Bind the cord to the back of the rat!'"³⁰

Hawaiian hero-tales contain instances of such witty retorts. Certain games cultivate the practice of wrapping a reproach or an insult under a form of words much like the old European lampooning by means of a "ballad." The *hula* songs especially preserve this art.³¹ But the formal riddling contest is described in full only in the story of Kaipalaoa.

The contest contains eighteen numbers. A list of their subjects may make the nature of the competition clearer:

1. Things that "turn over," *kukuli*.
2. Things of value in a canoe, *ka waiwai nui a ka halau*.
3. An "animal with its bones outside and flesh inside."
4. "Cold places where the hands are likely to get cold."
5. A mountain shaped like an animal.
6. A round-shaped relish.
7. A play on the word "hidden," *nalo*.
8. A play on the word "hand," *lima*.

³⁰ In the second version of the story, some variations occur. A comparison of the two is valuable as a study in oral transmission.

³¹ See Nathaniel B. Emerson, "Unwritten Literature of Hawaii, the Sacred Songs of the Hula," Bulletin 38, Bureau of Am. Ethnology, Smithsonian Institution, Washington, 1909, pp. 69, 70, 98, 106, 211, et cetera. Cf. the legend of Halemano, Fornander, v, 244-258.

9. A "bird with its wings hanging down."
10. A "thing that creeps without roots or stem."
11. Uses of the word "cling," *pili*.
12. A certain wind.
13. A "lifeless thing that carries away the dead."
14. Uses of the *hau* wood.
15. Fruits down below (vegetables).
16. The islands of the group.
17. A play upon the words *ola* and *moku*.
18. The "joints" of the body.

The wits about the chief voice the challenge in formal terms of insult, accompanied by an invocation to the god. They say:

These are all the uses to which you can apply the word "turn" young man. If you can find more you shall live, but if you fail you shall surely die:

We will twist your nose
Till the sun looks crooked as at Kumakēna!
We will poke out your eyes with our sticks here
And the god will suck up the water,
Our god of wrangling, Kaneulupo.

The boy takes up the word quickly:

Why can't I, though a lad, find a few more things that can be turned over? If I fail, you may live; but if I succeed, I will kill you all;

I will twist your noses
Till the sun looks crooked as at Kumakēna!
I will poke out your eyes
And the god will suck up the water,—
My god, Kanepaiki.

Several different kinds of word-plays are involved in the riddling, but the trick always consists in finding another case like the one or more described in the challenge. Some of the tests are not what we would call "riddles" at all; they are merely lists of things to which the test is to add another. A second sort of test depends upon a mere change in the place-name, either with or without a punning significance. Place-names enter largely into all these tests. Eight out of the eighteen numbers involve their knowledge. The successful combatant must therefore be a well-traveled man, since not only the place itself but its particular character and associations enter into the competition. In the case of actual riddles—the "animal with its bones outside," the "rich round relish," the "bird with drooping wings," the

"bat created long ago by Hina"—in which simple objects are wrapped up in metaphorical images, the point of the contest does not seem to lie in guessing the riddle, the answers to which—the crab, the candle-nut, the dragon-fly, a bat-shaped mountain—are contained in the challenge. It is for the opponent to compose a similar riddle which will parallel the first as exactly as possible and present an equally striking analogy.²² Sometimes the test is not metaphorical; an object may have a characteristic so unique that it is hard to match it. Of such sort is the riddle of the *kaunooa* vine which

—creeps there above without roots,
It has no stem, its only stem is the wood it creeps on,

but the lad sees a charming analogy in the spider-web. The possible changes vary from the slight alteration involved in

My bird with its wings down, a dragon-fly,
For at sight of water its wings hang down,

which the lad answers with

My bird with its wings hanging down, *Kaunihi*,
For at sight of a blade of grass its wings hang down,

to the figure of the animal-shaped mountain

Kauwiki, the mountain, the bat,
Created long ago by Hina,

matched by

Honuiki (little turtle) with its round head, washed by the sea.

Of the eighteen numbers of the contest, only five take any such liberties as the last with the phrasing, which is usually exactly reproduced with only such slight alteration as is necessary to turn the figure. Such performances require a very ready memory, as well as an active wit. The addition of a metaphor to a literal description, as in the riddle quoted above, or the introduction of a pun, scores for the contestant. Eight out of the eighteen

²² Cf. the African riddles gathered by M. Junod among the Ba-Ronga, where a somewhat similar matching process is employed. H. Junod, "Les Ba-ronga," *Bulletin de la Société Neuchâteloise de Géographie*, x (1898), 252-263.

numbers contain a play on words, and in five cases the pun is introduced in the reply. The most intricate example of this is the enumeration of "things of value" in the canoe-shed and in the calabash. The challenge is to add anything of equal value to the three things named in the canoe-shed—the canoe itself, the out-rigger, and the lashing-beam. By punning upon other uses of the three words, the boy proves that exactly these three things are "things of value in a calabash."

The riddles are for the most part proposed as an unrelated series, but the last three are linked together by a play upon the words employed by the last speaker. The conclusion is left unfinished by Fornander, who says, "The contest continued until the boy won out at the word 'joint' (ki)." Curiously enough, the end is recovered, as I think, in a story of a riddling contest from Puna collected recently in Honolulu and sent me by Miss Laura Green.³³ As it is unpublished, with her permission I give it in full.

A certain chief living in Puna in the days of long ago, was obsessed with the desire of obtaining all the riddles possible. He therefore made it a habit to send out from time to time certain young men from his district to search out this commodity. These young men would go from place to place, and on their return give to the chief the fruits of their research. After they had finished their recital of fresh riddles, the chief would invariably spring this one upon them: "Mo-ke-ki a mo-ke-ki!" This caused astonishment and consternation, for they had never before heard such words. For failure to answer, the chief commanded his soldiers to kill them.

He continued this custom for such a long period that but few youths of the district were left alive. One day he called before him a certain young man and commissioned him to make a circuit of the island of Hawaii in order to gather new riddles. Forthwith, the youth started, going up on the first stage of his journey into the district of *Olaa*. There he saw an aged couple cultivating their land. He called out "Aloha!" and they responded with the same salutation. The old man inquired, "What brings you on this journey?" The young man answered, "I am seeking proverbs for the chief."

"Alas! how pitiful!" exclaimed the old woman. "I fear that in the morning of your life your sun will set! But tell us plainly the kind of proverb you are seeking; for never before have I seen such sadness depicted in a youthful face! It is for us to be sad, for our sun will soon set."

The young man quickly replied, "Mo-ke-ki a mo-ke-ki!"

Now the Hawaiians say that this old man had once served as court jester and inventor of riddles for the Puna chief's father and grandfather.

³³ The Hawaiian informant asserts that although his is an old Puna story and resembles Fornander's, it is "not the same story."

He knew that what the chief was probing for as an answer to his riddle was some words representing parts of the human body with the syllable *ki* in them. So the old couple laughed, and the man said, "Yes, and this is the answer to your riddle: 'Ki-hi-poo-hi-wi' (angles of the shoulders) and 'ki-hi-poo' (angles of the head). When your chief springs this favorite riddle of his upon you, answer by giving the same to him!"

Thanking them, the young man continued his journey around the island. On his return, he showed to his chief all the proverbs he had gathered. After he had finished, the chief as usual gave his favorite riddle "Mo-ke-ki a mo-ke-ki!"

The young man answered the chief as he had been advised by his Olaa friend, then challenged him with the same riddle, "Mo-ke-ki a mo-ke-ki!"

"Ah! you live!" exclaimed the chief. "And where did you get this riddle? If you can answer it, my head is yours!"

The youth, smiling, replied, "Mi-ki au," at the same time holding up both hands, palms inward that the chief might see the finger-nails (mi-ki au). He immediately fell upon the chief and beat him to death without the interference of the soldiers standing near, for they had heard what the chief said.

Thus ended the foolish search for riddles by the chiefs of Puna.⁴⁴

If we compare this modern folk-tale with the two older Fornander versions contained in *Kipakailiuli* and in *Kaipalaoa*, for whose common source we have already argued, we shall find exactly those variations which we should expect to find in a later age. Both contestants belong to Puna, the link having been forgotten which sent heroes in more ancient times on adventures between the islands of Kauai and the district of Puna on Hawaii. There is no mention of the "oven," and, as in the episodic story, it is the chief himself rather than his disputers who suffers death. Like the episodic version, too, the riddle is not guessed but won from an old servant of the chief. Here it is by luck; in the earlier version the hero sets about the task of winning the man's confidence by kind treatment. Both lack the motive of blood-revenge which gives moral force to the more elaborate account of the

⁴⁴ Miss Green writes: "Certain families in Puna, Hawaii, will on request give you a riddle, but refuse the answer; the reason being that they are descendants of those men who made unsuccessful attempts to answer the chief's riddle of 'mo ke ki a mo ke ki' and perished by being baked in an oven. Their bones were stripped of the flesh (which was not eaten) and then converted into a fence around the chief's palace. If their descendants are urged to give the answer their reply will be 'Ka mea keia i holehole ia e ka iwi o na kupuna,' For this the bones of our ancestors were stripped."

hoopaa contest in *Kaipalaoa* and both lack the actual display of wit in repartee which belongs to the finished tale. But Miss Green's version contributes just that turn to the conclusion which is missing in the elaborated tale dictated to Judge Fornander. Putting the two together, the three linked riddles run as follows. The wits have named thirteen islands of the group and challenge the hero to name another. He thinks of *Moku-ola*, Isle-of-life, an islet off the coast of Hilo. Catching up the word "life" (*ola*) they rejoin

Break a tooth and live (*Hai ka niho la ola*)

He answers with a pun upon the word *moku*, which as a verb signifies "to cut," and says,

Cut the joint and die (*Moku ke ki la make*)

The answer is an enumeration of the "joints" of the body, as in Miss Green's version, and the concluding challenge must be that of the "finger-nails" (*mi-ki au*) according to her informant. In the Fornander version, the test depends upon adding another "joint"; in Miss Green's version, it is the contestant who is challenged to name the "joints" of the body.

A study of the practise of the *hoopaa* in Hawaii and especially of the wit in riddling which it develops, suggests that the riddling of today is a much simpler and more childish matter than in those days when it was practised by chiefs or employed by the specially gifted to acquire fortune. Evidently much is yet to be learned about the rules of the genuine old Hawaiian riddles, for examples of which we should no doubt turn to the old chants and *hula* songs of Hawaii.

It is likely that puzzling metaphor and pun became the fashion during a special period of Hawaiian history—that period which was dominated by the brilliant group of traditional island chiefs who appear in this set of stories and which is said to represent the high water mark of Hawaiian intellectual energy.³⁵ Its taste dominated later art. The simplicity of the archaic style was probably

³⁵ See Fornander: *An Account of the Polynesian Race, its Origin and Migrations*. London, 1880, vol. II, 32.

vitiated by the riddling tendency, and the result is an incoherent elaboration of riddles which even in the noblest of the later chants of Hawaii remain unintelligible to the Hawaiians themselves. Scandinavian and Irish native art met the same fate, and probably through a similar domination of wit over the imagination among an aristocratic circle closed to the uninitiated.

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MEDICINE SONGS OF GEORGE FARMER¹

By ALBERT B. REAGAN

WHILE doing research work among the Bois Fort Indians of Minnesota when I was Indian Agent at Nett Lake in that state one of my Indian policemen was a medicine man by the name of George Farmer Ne-ba-day-ke-shi-go-kay. He was a man of influence among his people. He also had a sufficient knowledge of his language, to be able to write down his thoughts in "Chippewa," though he had never been to any school so far as could be learned.

Once when at his place I accidentally discovered that he had a large note book. His little daughter gave it to me, and on opening it I saw writing in it, but in a language I did not recognize. After a good deal of persuasion, I succeeded in getting him to translate the words, when to my surprise I found that the writing consisted of medicine songs and medicinal receipts.²

These were written in Roman script but with phonetic values similar to French. Mr. Farmer let me copy his notes. The copy of his writing is in the first line and below this is the direct translation of each word that is translatable. The words "to-o," "ho-wo-he," "we-he," and many others are just thrown-in words and do not admit of being translated. Stars indicate places where there are lengthy pauses in the song and dashes where short pauses occur. The word written "mite" is the same as the "mide," found elsewhere.

¹ It should be noted that the orthography of the Indian words cited in this paper does not take into consideration phonetic niceties. Thus true lenes surd stops are not distinguished from sonant stops, nor are 'p, 't, 'k from p, t, k respectively. It seems likely that terminally sonant stops are aspirated but have a corresponding surd as a glide. True sonant stops do not exist after sibilants; and it is not likely that true surds exist after the consonants n, ŋ, m. Possibly, to judge by the Gull Lake dialect, other peculiarities exist.—Truman Michelson.

² The medicinal receipts were published under the title "Some Chippewa Medicinal Receipts," in the *American Anthropologist* (n.s.), vol. 23, 1921, pp. 246-249.

THE MEDICINE SONGS

Song 1: As Written in George Farmer's Notebook

KAGIWEIASH OGHGABEWI SI MI TEWIG

Bemí keweinan shi madagwanina
 Mí kana misíwe bemí kaweian
 Mí-sí-we o tenag babígotenag
 Ní bawíog mí mí gí himag kashi ka wít
Mego nawag
 Ní ní wa ní bawida bebi nawag
Ní te mosabebi nawog
 Wí-da ní-nee nish iníni wog o *nabíwog*
Edanabíian
 Anó djímo a ní gí wí newa ní kan
Nani gedji no dji mo a qwi mo ki ia ne
 Eí nawemo íane anish mí te
 Nái ní ní wag nani hí teshg awag
 Ní-te-mo sa
 * * * * *
 Sagi sí í tig wí ko tig
 Íaliaama wanai temasa kí to bwa
 Kane kí to nagane

Song 1: Kagiweiash Ochigabewisimitewig

(O. B. Johnson's Medicine Dance Song)

1. Be-mi-ka-we-i-nan shi-ma-da-gwa-ni-na
 I see a bear track or a track bear

Explanation: The above is sung by those who are walking around inside of the Grand Medicine Lodge, and they go through the motions of looking for the bear track, dancing around the hall in a half stooped-over position.

- | | | |
|-----------------|---------------------------|----------------------|
| 2. Ni-ka-na | mi-si-we | be-mi-ka-we-ian |
| put presents on | center line in dance hall | big ducks track seen |
| Mi-si-we | o-te-nag | ba-bi-go-te-nag |
| big ducks | town | bad rocks |

Free translation: Put the presents [to the gods] on the center line of the dance hall, as we have seen the tracks of the great northern loon (big ducks). The big ducks [are soaring around]. They see the rocks all around the town.

- | | | | |
|----------------|-----------------|--------------|-----------------|
| 3. Ni-ba-wi-og | ni-mi-gi-si-mag | kashi-ko-wit | me-go-na-wag |
| Somebody | my shells | today | somebody shoots |
| standing | | | |

Free translation: Somebody (some one of the medicine actors) standing up, "shoots" my medicine shells [for my benefit] today.

(It is believed that the konapamik shell, the sacred emblem of the Grand Medicine Lodge, is to be swallowed by the medicine man and then by the power of these shells (magic influence) he can "shoot" into the candidate's heart the mysterious power and influence contained in his medicine bag.)

- | | | | | |
|------------|-------------|------------|----------------|---------------|
| 4. Ni-niwa | nibawida | be-binawag | nitemosa | be-bi-na-wag |
| man | standing up | shoots the | partner friend | shoots shells |
| | | shells | | |

Free translation: A man standing up [in the lodge] "shoots" the shells [into the heart] of my partner; [he] "shoots" the shells. (It might also mean: A man, standing up, "shoots" the shells. My friend "shoots" the shells.)

- | | | | |
|--------------|---------------|-----------|-----------------|
| 5. Widaninee | nish ininiwag | ona-biwag | eda-na-bi-ie-an |
| have lots of | two men | sit down | bed |
| things | | | |

Free translation: Two men who have lots of things sit down on a bed or mat.

- | | | |
|---------------------------|------------------------|------------------|
| 6. A-no-dji-mo-a | ni-gi-wi-ne-dwa | ni-kan |
| somebody's brother | shoot the shells, sick | partner |
| Na-ni-ge-dji | no-dji-mo-a | e-wi-mo-ki-ia-ne |
| somebody saw him on the | someone falls down on | somebody sings |
| other side of his brother | his side and gets up | |
| | again | |

Free translation: My partner whom you see on the other side of the sick brother "shoots" the shells into him (the candidate), as he falls down and gets up again, as somebody sings. (This stanza illustrates the action of the candidate, falling down when he is "shot" by the medicine man; the magic influence of the medicine bag being "shot" into his heart, and being too powerful for him to bear, he becomes unconscious. Such a scene as is here described can be seen at any medicine lodge dance. The person who falls down in a pretended unconsciousness is said to be sick.)

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|------------------------|---------------------|------------|
| 7. E-gi-na-we-mo-ia-ne | an-ish-mi-te | |
| somebody sang | I guess dancing | |
| Wai-ni-ni-wag | na-ni-bitesh-gowag | ni-te-mo-a |
| man | dancing all walking | partner |
| | to town | |

Free translation: As somebody sings there is dancing; everybody dancing walks to town with my partner. *Or:* Somebody sings and there is dancing and everybody, dancing, walks to town with my partner (the person being initiated).

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|------------------------|---------------------|------------|
| 8. Sagisjtigwikotig | Yahla(h) ah(h)ahmah | aniatemasa |
| somebody shoots shells | at wigwam | partner |
| Ki-t-bwa-ka-na | ki-to-na-ga-ne | |
| five | plates | |

Free translation: Somebody (the medicine man) "shoots" the shells [in a "medicine" way] at the wigwam of my partner (the person being initiated) and [he prepares] five plates [for the chief medicine men, i.e., five dishes of eatables].

Song 2: As Recorded in the Notebook

ENAGAMI GI NAG MI TE NAGAMON

Manito ino nanawagamig
Na-na-wik-ish-go-ke manito *wiko*
Biei-na bi-wake dji gwe-wa-ge
Ki-i-e-i-na bi-wake ms ki-ia-ne
Na-na-wa-ga-mig we dji ms-ki-iane
Na-na-wi-ki-shig we dji ms-ki-iane
* * * * *

Awena—*ke-wi-a-wo-ge* ki hinan
Awena—*ke-wi-a-wo-ge* dji kwewoke
Ni-kani wi te
Ni kani i ko o
Dji-bi sasagadji we adaki mi to ke
Mada ni kishi ko mina to ke
Nano deia ko we wake edashit
Milewa wewigani magwa
Wi a mwake dawi amwake
Megwe kamig nani bawigwen
Kisig i nato dane ni kan *kiwidakamige*
Kana wabami te
Waban ni bi tsne ni kan
Baia-wage badamwewi daman
Kaogi na manito.

Song 2: E-na-ga-mi-gi-nag mi-te na-ga-mon

(Anahkahmegenung's Medicine Lodge Song)

1. Manito	ino	nanawagamig	nanawikishigoke	nimatowike
God	is	over all islands	over the heaven	[is] God (?)

Free translation: God is over the heaven and the earth. (It is hard to translate this. Na-na-mi-ga-mig is the "muskeg" (peat) in the swamps rising up out of the water, a sort of floating peat, the Indians believing that the land surface of the earth is a floating muskeg—"lots of islands on the surface of the big ocean." They base their belief on the fact that a piece of muskeg will tear loose from the bottom of the shallow lakes in that northern country and float around bearing upon it quite a bit of vegetation, even small trees. I have used such floating islands as concealments in the fall when hunting ducks on Nett Lake. I could hide among the rushes and sunflower like weeds and, putting my decoys in the clear water adjacent, could shoot ducks from that concealment as they settled on the water among them; but I had to be careful lest my island sink under my weight and leave me in the water. Na-na-wa-ga-mig also means "all over the country are big

islands," i.e., it is the earth (the middle of the universe). The Indians believe that the visible universe is composed of two plate-like parts; the sky is the upper "plate," the earth the lower "plate." They call the earth the lower middle of the universe, the sky the upper middle of the universe. They also believe that we live in the center of the upper (or land) part of the "earth-plate" and that the sky directly above us, "the visible sky," is the center of the "sky-plate." Nah-nah-we-ke-shig-oke is "the center of the "sky-plate.")

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|----------------------------|--|
| 2. Bioina-bi-wake | dji-gwe-wa-ge |
| the thunderbird | thunders |
| Ki-ic-i-na | bi-wake mo-ki-ia-ne |
| look see | the islands grow up [out of the water] |
| 3. Na-na-wa-ga-mig | we-dji-mo-ki-ia-ne |
| from the middle of the sky | we come down |

Free translation: From the center of the earth, the land surface of the earth, the big island grows up and from the center of the earth-plate we come up. From the middle of the sky-plate in the starry vault we come down.

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|-------------------------------|---------------|------------------|
| 4. A-we-na | ke-wi-a-wage | ki-bi-nan |
| who | uses | medicine shells? |
| A-we-na | ke-wi-a-wa-ge | dji-kwe-wa-ke |
| who | uses | the thunder? |
| 5. Ni-kane-we-te | | |
| the head walker in the dance. | | |

Ni-kani-i-ho o
(the head walker in the medicine dance, the leading man, the person who leads or heads the dancing column in the Grand Medicine Lodge dance ceremonies.)

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|---------------------------|----------------------|
| 6. Dji-bi-sa-sa-ga-dji-we | a-da-ki-mi-to-ke |
| the daylight | comes upon the earth |
| Ma-da-ni-kish-i-ko | mi-na-to-ke |
| sky | God |

Free translation: The daylight in fringed rays comes upon the earth and when the sun gets a little higher the sky clears (i.e., darkness is gone, darkness goes when the sun gets brighter).

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|---------------------------|--------------------|
| 7. Na-no-de-ia-ko-we-wake | wa-ke-e-da-shit |
| there not much | talking |
| Mi-te-wa | we-wi-ga-ni-ma-gwa |
| medicine men | our brethren |

Free translation: There is not much talking. The medicine men are our friends or brethren." (The whole stanza seems to mean: Every one is too tired from dancing to talk much; but all the medicine men are our friends.)

8. Wi-am-wa-ke da-wi am-wa-ke
 eating dog medicine dance

Me-gwe-ka-mig na-ni-ba-wi-gwen
 all the people stand up between lots of houses

Free translation: All the people [are] standing up dancing all around the village eating dog as they dance. (This stanza is sung just before the dog-eating feast begins.)

9. Kishig i-na-to-da-ne ni-kan ki-wi-da-mi-ge
 sky asks brethren all round the horizon

Ka-na-wa-ba-mi-te
 look and see

Free translation: The medicine man points to the sky and says: The heavens ask the brethren [of our lodge] everywhere to look and see me, (i.e., to approve his medicine acts).

10. Wa-ban ni-bi-te-ne ni-kan
 morning brings friends
11. Ba-ia-wa-ge ba-da-me-we-wi-da-man
 thunderers coming
- Kah-ge-na manito
 all gods

Free translation: The thunderers are always coming; all the gods [are always coming].

Song 3: As Recorded in the Notebook

O NA MAN ASH GWEN A GA MON

Ieewa wedahi ian ogimawano

Gwen abiiian ahi gwen

Ni kan ni na to na mawa ni kan

Ka wi da mon me ni to wag

* * * * * *

Ieewa ni to ko kagi na mi to gok we

Wigan magwakaki na adi mig

Awewedani na kamatweishit kakina

Mi tewag dji no dame wat

Awenen ni kan ni na to ma

Mite nikis manito ni kan kiwabama

Ia a magwaweto ti hi hishgokamig ni kan

Ka-damwe wi doke ti bishigokishik

* * * * * *

Song 3: as sung by O-na-ma-nash-gwen-a-ga-mon

1. Iie-e-wa we-da-bi-ian o-gima-wa-no-gwen
 (no meaning) see the [bed] chiefs

Free translation: Look, and see me! You see me on top of the ground (country or earth).

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|------------|--------------|--------------|
| 2. Ni-kan | ki-wi-da-mon | me-ni-to-wag |
| my brother | I ask you | gods |
| Ni-kan | ki-wi-da-mon | menitowag |
| my brother | I ask you | gods |
| | | mishagwatog |
| | | clear sky |

Free translation: My brother, I ask you about the gods. My brother, I ask you about the gods of the clear sky.

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|--------------|-----------------------------|----------------|
| 3. A-ia-a | keosabamigwen | tibishgokeshig |
| (no meaning) | where you were watch- | middle of sky |
| | ing me or I want you to see | |

Free translation: I want you to see in the middle of the sky.

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|---------------------------|---------------------|
| 4. Ki-me-te-win | tibish-go-kamig |
| I give you medicine dance | middle of the earth |
| Ki-me-te-wi-in | ti-bish-ko-ki-shig |
| I give you medicine dance | middle of the sky |

Free translation: I give you a medicine dance in the middle of the land area of the earth; I give you a dance in the zenith above.

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|------------------------|----------------------|
| 5. Na-ni-ba-a-ga-wi-da | ish-gwa-teg |
| walking in the night | in the door |
| Ki-ne-big | a-ga-wi-da |
| snake | walking in the night |

- | | | | |
|--------------|----------------|----------------|-----------|
| 6. Ka-ie-min | i-ka-na-wi-ton | mitewiwin | manitowan |
| I, too | am keeping | medicine lodge | gods |

Free translation: I, too, am keeping a medicine lodge for the gods.

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|----------------|---------|-------------------|--------|
| 7. A-ia-go | oiokima | a-io-ko | manito |
| it was said to | chief | it was said to me | god |
| him sometimes | | sometimes see | |

Free translation: It was said to me: "Sometimes I see a chief; sometimes I see a god."

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|---------------------|----------------------|-----------------|
| 8. We-sa-wa-dji-wag | ki-dji-ka-mi-we | |
| it looks billows on | Lake Superior | |
| Anin | en-a-dji-wag | ki-dji-ka-mi-we |
| what is it | waving in billows on | Lake Superior |

Free translation: It looks like billows on Lake Superior. What is it waving in billows on Lake Superior?

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|----------------|----------------|
| 9. Ka-wi-ki-ka | a-ia-dji-mi-te |
| getting old | somebody tell |
| Ka-wi-ki-ka | wa-ia-ba-ko-ke |
| pretty old | I see |

Free translation: Somebody tells me about somebody getting old. I see a pretty old man.

Song 5: Mite Nagamon (Medicine Dance Singing)

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|-------------------------------|---------------|
| 1. Be-mi-ka-we-i-na-ne | shi-ma-da-gwa |
| see track | bear |
| 2. Shi-ma-da-gwa ^a | ni-to-ga-wi-a |
| bear | I see track |

Free translation: I see the bear track.

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|--------------------------|---------------------|-----------------------|
| 3. N-ga-na | ni-wa-ni-no-se | wi-ki-wa-mik |
| friend | walking around [in] | medicine lodge wigwam |
| Ish-gwa-teg | ni-wa-ne-no-se | |
| in the door of the lodge | walking around | |

Free translation: They are walking around the brother (friend) who is being initiated in the medicine lodge wigwam. They are walking around him in the door of the lodge. (This is the scene of the dancing actors dancing around a novice.)

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|-------------------|--|
| 4. I-we-da-bi-ma | ki-to-bwa-ka-ne |
| set (or lay) down | pipe |
| I-wi-da-bi-dan | ki-to-na-ga-ne |
| set down | dishes of eatables (or dishes to eat in) |

Free translation: Put down the pipe. Set down the dishes [in the place designated]. (The dishes are such as are used to contain certain eatables at the medicine dances. The scene indicated by this stanza is the preparatory ceremony to the feasting part of the medicine ceremonies.)

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|----------------------|-------------------|
| 5. Ki-shi-gwi-bi-nan | ki-wa-wi-da-mo-ne |
| sky | I ask |
| Ki-dji-sa-ki-ma | ki-wa-wi-da-mo-ne |
| sky | I ask |

Free translation: I make supplication to the sky. I make supplication to the sky.

* * * * *

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|-------------------|----------------|------------|
| 6. Wa-ba-ma-ga-ne | shimadagwanino | inemadabit |
| see | bear | sit down |

Free translation: A bear skin is exhibited, sitting down.

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|-----------------------|-------------------|--------------------|
| 7. We-na-go-da-wi-ian | ti-bish-go-kam-ig | |
| set snare | in sky | |
| O-mi-te | manito | ti-bish-go-ki-shig |
| medicine | god | me-ma-to-bit |
| | | sat down |

^a The *g* in *gwa* has almost the sound of *q*.

Free translation: The medicine god [of the middle of the day] made a snare in the sky and sat down in the middle of the sky.

8. Ia-ni-ka-na	shi-ma-da-gwa	be-mo-set
my brother	bear	walking
Mi-ka-nag	mi-si-se	bi-mo-se
road	turkey	walking
		mi-ka-nag
		road

Free translation: My brother, the bear, is walking the road; the turkey is walking the road. (This probably refers to some drawing on a birch bark parchment.)

9. A-ni-da	e-bi-na-wi-iane	shi-ma-da-gwa
what you say	shoot me	bear
Ki-ma-ga-te-wi	te-na-ni-we	ki-wa-ki-te-na-ni-we
black	tongue	crooked

Free translation: What do you say? The black bear with the crooked tongue is going to "shoot" me [with the medicine shells]. (I have seen acts in the medicine lodge ceremonies in which a black bear skin with long tongue extending out of the mouth was pointed toward non-dancers by the dance-actors in the ceremonies as they passed by the same in their forward movement. And this stanza probably refers to such an act.)

10. Odji-ie-to-ian	wi-ia-i	ki-mi-sho-mi-si-nan
I set	(no meaning)	girl's grandfather's
O-ma-ki-sin	ani-ie-to-ian	ni-ka-da-mo-wan
moccasin	I set it	I am afraid

Free translation: I place the girl's moccasin [as you suggest]. I set it down, because I am afraid.

Song 6: Sa-gi-man-a-ki-ka-mon (Drum Singing)

1. Ka-wa-bi-kwe-hi-wat	ma-ni-tok
white haired	god
Ish-a-we-ni-mi-kok	ti-bish-ko-kamik
gives medicine by a kiss (touch-mouth process)	middle place
Ki-wi-da-ka-mik	
all around the earth	

Free translation: The white haired god, wherever he meets him in the middle of the earth space or all around the earth (everywhere), gives him medicinal powers (*literally* medicine) with a kiss.

2. Ish-a-we-ni-mi-kog	ni-kane	ti-bish-go-ka-mig
give him medicine	my friend	middle place
by a kiss		
Ke-kibwa-ganawat	niti-nemikog	kegina-kogane-wat
has pipe	full of tobacco	has dishes

Free translation: My friend, he who gave him medicine by a kiss in the middle of the earth place, has a pipe full of tobacco. He also has some dishes.

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|-----------------|---------------------|---------------------|------------|
| 3. A-be-bi-na | bi-si-daw | ka-ia-gi-ki-to-wat | |
| just now | some one is talking | that talking | |
| | (who's talking?) | | |
| O-ko-we | mi-te-wag | we-we-ni-sa | bi-si-daw |
| here | medicine man | a little close like | who's that |
| | | whispering in the | |
| | | ear | |
| Ki-ia-gi-te-wat | | ki-wi-da-ba-mig | |
| talking | | all country around | |

Free translation: Who is that talking just now—a little close as if whispering in the medicine man's ear? Who is talking everywhere?

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|-------------------------------------|---------|---------|---------|
| 4. E-go-bi | wa-hwen | o-go-we | manitog |
| about ten sit down in a long circle | | here | gods |
- Ki-ne-ia-bi-ka-ti-nag
Mesabe Ranges (of mountains)

Wegwebiiote	waiagwakidjikaming	mi-te-wag
in a long line	Lake Superior	medicine men

Free translation: About ten gods of the Mesabe Range are sitting down here in a circle; the medicine men of Lake Superior are sitting down here in a long line.

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|-----------------------------|-----------------|------------|
| 5. Ka-ie-min | nina-ga-mo-i-go | ni-kan |
| too, me | sing | my brother |
| Ni-bi-shi-gwa-na-nig | e-bit | ma-ni-to |
| at long point at Leech Lake | living | god |
| Ba-bi-gwa-wa-kag | ni-na | |
| Leech Lake | me | |

Free translation: My brother, I, too, have sung at Long Point at Leech Lake (Onigum, Minnesota). The god of life also sang at Leech Lake with me.

6. Ka-bi-ma-ni-gwe-ko-mo-ian
long hair (of the god, referring to the white choppy waves)
- | | |
|----------------------|--|
| Mi-sha-wi-ki-dji-kam | I-ba-na-be |
| Lake Superior | (name of a god) |
| E-ko-ian | ka-wa-da-ni-gwe-ko-mo- kaish-gwe-kameg |
| | ian |
| is my name | long white hair hanging Lake Superior |
| | down the back |

Free translation: I am the long white hair of Lake Superior (i.e., the white, choppy waves of Lake Superior). Ibanabe is my name. I am the long white hair hanging down the back of Lake Superior.

7. Mi-edo	ma-ni-tog	o-ke-we	wa-ia-ko-no-we-wat
one	god	here (this)	crooked tail
Miedo	ma-ni-tog	okowe	ke-mi-we-no-we-wat
one	god	here	long tail

Free translation: There is one manido here with a crooked tail; there is also one god here with a long tail.

8. A-ia-gwa-mi-na-ne		ka-gi-wi-da-mo-nan	
you hold (like holding a piece of money)		I ask you	
O-o-we	bi-wa-big	ni-ka-ne	o-na-man
this (here)	iron (trap)	my friend	iron trap
Ka-gi-wi-da-mo-nan			
I ask you			

Free translation: I ask you [about] this iron [trap], my friend. My friend, I ask you about this iron trap. [Does it hold things as] you hold a piece of money? (The medicine man had probably brought a trap back with him on his return from the journey this poem is describing.)

9. Ni-sho-ka-mig	e-da	ni-ga-bi-ti-ke
medicine wigwams	two	go in
Ni-sho-ka-mig	e-da	ni-ga-bi-ti-ke
medicine wigwams	two	go in
I-da-wi-na	o-wi-bi-ia-ne	
both sides	[have] shells [suspended on both sides]	
Ka-ga-wa-ia	o-wi-bi-ia-ne	
porcupine quills	shells	

Free translation: There are two going into the medicine wigwam. Two are going into the medicine wigwam. They have shells suspended on both sides, also porcupine [quill] shells.

Ba-si-gwi-wai-ka-nan	o-now
singing medicine dance	last two

Free translation: The last two are singing a medicine dance song.

Song 7: Madjishgog Mite Nagamon
(John Johnson's Medicine Song)

1. We-we-ni	no-da-wi-ia-ne	se-se-ga-dag
easy	sighing	spruce trees
Shi-ma-da-gwa-ni-no	wa-ha-mi-ia-ne	
bear singing	see me	

Free translation: Among the easy sighing spruce trees, the singing bear sees me.

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|----------------------|---------------|
| 2. Ia o-mi-gwa-ni-ia | shi-ma-da-gwa |
| feather | bear |

O-mi-kwa-ni-to
feather, like a goose feather

Free translation: The bear has a feather, a feather like a goose feather.

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|-----------------------|------------------|----------------|
| 3. A-ni-wa-ba-ton | ba-i-no-se-ia-ne | shi-ma-da-goke |
| I wait until daylight | walking | bear |
| 4. Bi-mo-se-ian | shi-ma-da-gog | bi-i-no-si-ian |
| walking | bear | down this way |

O-ki-ma-win	man-e-to-wa-ne
chief	god

Free translation: I wait until daylight for the walking bear. The principal bear god is walking down this way.

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|----------------|----------------|------------------|
| 5. Kah-ie-min | agi | ni-wa-ba-dan |
| to me | all over | see |
| Ka-ie-min | ba-dja-gwin | a-ki-tin |
| to me | men's privates | woman's privates |
| 6. Ma-ni-to-wi | od-ji-da-sa | o-ma-ga-gi |
| god | sit down | frog |

Na-ma-da-bi	ki-ia-wik
sit down	shoulders (hips)

Free translation: The frog manido sits down (or sat down). He sat down on his folded hind feet (hips).

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|------------------------|-------------------|--------------|
| 7. Mi-ka-na-ke | sha-we-ni-mi-wat | mi-te-wa-ke |
| my [real] friend | gives goods to me | medicine man |
| Ba-gi-dji-kan | sha-we-ni-mi-wat | mi-te-wa-ke |
| blankets, calico, etc. | gives to me | medicine man |

Free translation: My friend (brother in the lodge), I give the goods to the medicine man. I give blankets, calico, etc., to the medicine man.

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|----------------------|-----------|-----------|
| 8. Ma-dji-io-te | ki-bi-nan | ki-ia-wik |
| walking with all | shells | shoulders |
| over breast | | |
| A-ia-go-ki | ki-bi-nan | ki-ia-wik |
| pressing down weight | shells | shoulders |

Free translation: He was walking with shells all over his breast and shoulders. The shells press[ed] down the shoulders with their weight.

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|-----------------------------|-----------------|
| 9. Me-te-we-ia-dji-wag | ki-dji-ka-mi-we |
| hear waves, yellow floating | Lake Superior |

Ka-wa-be-dji-wag
hear waves

we-sa-wa-dji-wag
hear the waves

Ki-dji-ka-mi-we
yellow floating Lake Superior

Free translation: Hear the yellow floating waves on Lake Superior.
(Repeated.)

Song 8: Mite Nagamon (Grand Medicine Song)

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|------------------|------------------|-----------------------|
| 1. A-we-na-ia-ne | shi-ko-si-wa-ian | akimi-djanisa |
| who is that | whistle hard | young ones (children) |

Free translation: Who are the young children who are whistling hard?

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|-------------|-------------------------|-------------|
| 2. Ni-ka-na | a-to-da-ma-wa-da | o-te-i-gwen |
| my friend | ask for (or give to me) | your heart |

We-mi-ki-sa-go	ka-no-da-ma-wa-da
god shells	give to me

Free translation: My friend, give me your heart; give me god shells.

- | | |
|---------------------|--------------|
| 3. O-dji-i-ko-ia-ne | ni-mi-ki-sin |
| talking about | shells |

O-so-mi-ko-ian	ni-mi-ki-sin
talking about	shells

Free translation: We are talking about the [medicine lodge] shells. We are talking about the shells.

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|----------------|--------------|-----------|------------------|
| 4. A-i-gwa | o-be-so-wag | ki-bi-nan | ma-da |
| just now | flying | shells | here |
| A-gig | o-dji-so-wag | ke-shig | ko-ko-dji-se-wag |
| earth (ground) | shells | sky | flying |

Free translation: Just now the shells are flying (being "shot" by the medicine man—possibly only in imagination) here over the land surface of the earth. The shells (in the medicine man's imagination most likely) are flying through the sky. (This, of course, may be a poetic expression and simply refers to the using of the shells in the medicine dances.)

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|----------------|--------------------|--------------------------|
| 5. Wa-ia-bi-te | o-ki-ma-mi-te-wa | ba-ia-bi-te ⁴ |
| looks good | chief medicine man | laughing |

Free translation: It looks good to see the chief medicine man laughing. The medicine man is laughing "ha, ha, ha, ha, ha, ha, ha."

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|--------------|-----------|--------------|
| 6. O-to-gwen | ki-bi-nan | it-e-mo-sa |
| sick | shells | close friend |

Ka-ie-win	ba-ba-mi-se
me to you	flying

⁴ "Ba-ia-bi-te" is also pronounced "ba-yah-pit."

Free translation: My close friend, the shells to cure the sick are flying from me to you.

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|--------------|-------------|-----------|---------------------|
| 7. Ka-ie-win | ba-ba-mi-se | ka-ie-win | da-ki-wi-se |
| me to you | flying | me to you | like shaking shells |

Free translation: They are flying from me to you. They are flying from me to you like shaking shells. (The shells are being "shot" from me to you and shake as they are "shot," or are in the act of being "shot.")

8. Bi-mi-shi-mo-dji-keg
carrying blankets in the final dancing act

Free translation: They are carrying blankets in the final dancing act.

9. (an added stanza).

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|---------------------|----------------------|
| A-ni-da-ia-ni-ne | we-mi-ti-gosh-i-gwag |
| he got it | the white man |
| O-mo-ti-da-ka-mi-wa | o-da-to-ba-ni-wa |
| calico | pails |

Free translation: He has the white man's calico and pails [for presents].

Song 9: Mi-te Na-ga-mon (Grand Medicine Song)

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|---|----------------------------|
| 1. Sha-we-ni-mi-ia-ne | ni-kan |
| fondling as a mother does her child | my brother |
| Ka-ba-ki-te-nan | min-wa-ba-mi-gwen |
| raised up wigwam (or lifting up the flap of the door) | look good, see me |
| Ni-kan | ka-ba-gi-te-nan |
| my friend | raised up wigwam door flap |

Free translation: When I raised up the door flap of the wigwam, my friend made love to me in the most loving way. As I raised up the door flap to the wigwam my sweetheart looked pleasant to me (i.e., bade me welcome by her pleasant looks).

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|----------------|-----------|-----------------|
| 2. Ka-ie-nin | ko-da | a-mi-shi-mi-sa |
| too, me | I suppose | my close friend |
| Ki-da-wa-ba-ma | ka-ie-min | |
| see | me, too | |

Free translation: Me, too, my close friend, I am looking for you. Me, too, my friend, I am looking for you. (But the Indian puts it: "I suppose that I, too, my close friend, I am looking for you." This is the comer's statement on raising the door flap. The answer is: "I suppose that I, too, my friend, I am looking for you.")

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|---------------|---------------|----------|
| 3. A-wi-ka-ne | shi-ma-da-gwa | o-ka-tig |
| sore bone | bear | leg |
| A-wi-ka-ne | shi-ma-da-gwa | o-to-mig |
| sore bone | bear | mouth |

Free translation: The bear has a sore bone in his leg. The bear [also] has a sore bone in his mouth.

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|---------|-------|-----------------|-----------------|
| 4. O-to | o-ton | we-dji-shi-moke | in-te-mo-sa |
| mouth | mouth | somebody killed | my close friend |
| | | him | |

Free translation: His mouth! My friend, somebody hit him in the mouth.

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|----------------------------|---------------|----------------------|-----------|
| 5. We-dji-ki-kah-ki-bi-nan | | a-ia-dji-o-t | |
| very old shells | | make young ones | |
| We-dji-ki-ka-ki-bi-nan | | a-ia-dji-o-ki-bi-nan | |
| very old shells | | make young shells | |
| 6. Ia-ni-ma-na | shi-me-da-gwa | he-mo-set | |
| my friend (brother) | bear | walking | |
| Ni-ka-nag | mi-si-se | bi-mo-set | mi-ka-nag |
| road | turkey | walking | road |

Free translation: My partner, the bear is walking the road. A turkey is [also] walking the road.

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|-------------|-----------|---------------|----------|
| 7. Ia-we-na | ni-ka-na | shi-ma-da-gwa | |
| who is that | my friend | bear | |
| Bi-mo-sa | mi-ki-nag | ma-ne-to-we | ni-ka-na |
| walking | road | god | friend |

Free translation: Who is that? It is my friend, the bear, walking the road. It is my friend, the ma-ne-to-way (god).

Song 10: Saki-ma-naga-mon (God-singing)

- | | |
|---------------------------|------------------------|
| 1. A-be-sa-mo | ka-sha-we-ni-mi-ne |
| somebody wants to go home | kissing young children |
| A-be-sa-mo | ka-wi-sha-we-ni-mi-ne |
| somebody wants to go home | kissing young children |

Free translation: Somebody wants to go home and kiss her young children. (Repeated.)

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|---------------------|--------------------|
| 2. Sha-bo-te-bi-wag | o-ko-we |
| sit down | somebody |
| Me-te-wi-wi-wat | sha-bo-te-bi-wag |
| medicine man | sit down |
| O-ko-we | sa-ia-ki-ma-wi-wat |
| somebody see | medicine man |

Free translation: Somebody sees (or saw) the medicine man sitting down.

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|-----------------|-------------------|-----------|
| 3. A-gwa-me-nan | ki-ia-we | ma-gi-sha |
| hold me | tight | I guess |
| Ni-ko-tig | da-bi- mish-ka | ki-ton |
| somebody | pulls to one side | mouth |

Free translation: Hold me tight. I guess somebody pulled his mouth to one side by putting his finger in one side (corner) of it and pulling it out.

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|--------------------|----------------------|----------|--------|
| 4. Ish-a-wa-ni-mig | ba-bi-gwa-wa-kag | ebi-gwen | |
| like kissing him | Lake of the Woods | living | |
| Man-i-to | we-dji-wi-ko-dji-wag | ebi-gwen | manito |
| god | source of river | living | god |

Free translation: The Lake of the Woods is a living god; the source of the river in a lake (the intake of a river from a lake) is a living god. It is as if these were making love to him.

5. I-ta-wa-ka-mig
the surface of the top of the earth and the surface below the earth

Ni-no-da-ko-dag	O-mi-shi-ma-gi-na-go
must be hearing me	(a god's name)

Free translation: Omishimaginago, the god of the surface of the top of the earth and the surface below the earth, must be hearing me. (The Indians believe the earth to be flat or pancake-like in shape with an upper and lower surface. Some Indians also believe the earth to be composed of apartments, one above another, the floor of each apartment being like the surface of the world upon which we live.)

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|----------------|-----|------------------|-----|
| 6. A-no-ka-ie | nin | kash-a-we-ni | nin |
| too | me | kissing | me |
| We-na-gwe-shig | | ka-sho-we-ni-mag | |
| in the evening | | I am kissing you | |

Free translation: Me, too, you are kissing in the evening. I [too] am kissing you. (You are making love to me and I am making love to you.)

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|-----------------------|-------------------|
| 7. Ka-ia-ki-gi-to-ian | da-she-mag |
| I am talking | about him |
| A-we-si | we-na-na-gwi-shig |
| animals | tonight |

Free translation: I am talking about him to the animals tonight.

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|------------------------------------|-----------------|
| 8. Be-ba-mi-dji-wa-ge | ni-kat-ed-a-mon |
| flooding everywhere river downward | talking |
| Da-bi-kwe-gi-dji-wan | |
| [as it] recedes | |

Free translation: The everywhere flooding river as it rises is talking as it recedes.

Song 11: Kaish Mite Nagamon (Kaish's Medicine Song)

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|---------------|---------------|----------|--------|
| 1. Na-si-gan | na-sigan | mite | wi-gan |
| going walking | going walking | medicine | wigwam |

Free translation: He is going walking, walking to the medicine lodge wigwam. (This is sung of some object on a medicine scroll. True, the song

3. A-o-wi-ka-ne bone	Ba-ga-mo (name of a god)	ni-ka-ne brother
A-o-ka-te leg		wi-ka-ne bone

Free translation: This is the bone of Bagamo, brother, the leg bone.

4. Wi-a-ia-dji-mi-go-si-ian talking about to me		na-go-da-mok asks me	
Manitog God	wa-bi-she speaks	shi-wa Martin	e-ko-ian my name

Free translation: God speaks to me and asks me if Martin is my name.

5. We-go-ne ke-gwe-dji-i-na-ian-e what is it I shall give	mi-te-wi-win medicine dance	
Ma-ni-to-wan god	ni-kan my friend	ge-gwe-i-ian-e shall be initiated

Free translation: What is it I shall give the medicine dance god, my friend, [if] I shall be initiated [into the lodge]? Or what is it I shall give the medicine dance god [as a present], my friend (or brother), if I try to be initiated [into the lodge]? (The inquirer here wishes to know how many presents he must put on the "medicine line" that is stretched through the center of the lodge so that he may be admitted into the degree which he seeks to take.)

6. Ma-ni-to-wan god	i-no-se-ia-ne walking	o-kwe-kan sweat house
Ma-ni-to-wan god	bi-mo-se-ian walking	a-gik ground

Free translation: The god is walking to the sweat house. The god is walking on the ground.

Song 13: Ma-djish-gag (Mahjishkung) Mite Nagamon
(John Johnson, Grand Medicine Song)

1. Be-mi-ka-we-ian-ne see track	shi-ma-da-gwa bear	ni-na me
Eshi-ga-we-i-nan I see, look track	i-ko-dji somewhere	wa-go-sha fox

Free translation: I saw a bear track. I also looked and saw a fox track somewhere.

2. Ni-kan-a my friend	ba-bi-ko-te-nag town	bi-mi-ga-we-ian see track
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Free translation: I see a track in the town.

3. Ni-ba-wiag stand up	ni-mi-ki-si-nag medicine shells (my)	ka-shi-ko-wit today
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Me-ni-to-wit
god

Free translation: Stand up today with the medicine shells of the god[s].

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|-----------------|--------------|--------------|
| 4. I-ni-ni-wa | ni-ba-wa-tog | me-go-na-wag |
| man | standing up | shooting |
| I-te-mo-sa | ni-ba-wi-tog | me-ko-na-wag |
| my close friend | stand up | shooting |

Free translation: The man is standing up "shooting" the shells. My close friend is standing up "shooting" the shells.

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|------------------------|---------|-------------------|
| 5. E-gi-no-we-mo-ia-ne | anish | mi-te-wi-ni-ne-wa |
| good sing | I guess | medicine |

Na-ni-bi-tesh-ka-wa-ge	i-te-mo-sa
walking around	my close friend

Free translation: I guess my close friend, the medicine man, is singing good [while] walking around.

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|--------------------|-------------|-------------|
| 6. Me-da-ni-ne-e | ni-sh | i-ni-ni-wag |
| all kinds of goods | two | men |
| E-da-na-bi-ian | i-te-mo-sag | o-na-bi-wag |
| bedroom | my friend | sit down |

Free translation: Two men with all kinds of goods sit down in the bedroom of my friend.

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|-------------|-------------|-----------|
| 7. Man-i-to | ba-ba-mi-te | mi-ti-gog |
| God | sees | trees |

O-ma-gwa	wa-ba-mi-te
bear	sees

Free translation: The Manito sees the trees. The bear sees them.

8. Be-mo-da-keg (This was not sung.)
talking

- | | | |
|-----------------|------------------------|-----------|
| 9. Wasa | ni-bi-ti-na-wah | ni-kan |
| little, far | shooting | my friend |
| I-te-mo-sa | ni-kan | |
| my close friend | brother [in the lodge] | |

Free translation: From quite a distance my friend, my close friend, is "shooting" my brother [with the shells].

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|--------------|---------|--------------|-----------|
| 10. Be-shick | a-wa-ke | me-mi-to-wit | ki-bi-nan |
| one [more] | like | gods | shells |

Free translation: There is one more like the god's shell (a shell of the gods).

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|--------------|--------------------|---------------|
| 11. Ma-totok | na-ishi-na-gwo-ian | she-ma-to-kog |
| sweating | like me | bear |

Ni-wik a-ni-ie-to-ian
four times putting something
(that's what I put)

ki-mi-sho-mi-si-nan
grandfather

O-ni-gi-sin
moccasin

ni-ko-da-mo-win
I am afraid

shi-ma-to-kwa
bear [shooting]

Song 14: Farmer John Sag-im-an-a-ka-mom.
(Farmer John's Singing)

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|--------------------------------------|--|
| 1. Weko-ne-ne
what is it you say? | ke-wa-ti-na-ma-wi'an
are you trying beating me? |
| Ki-da-se-ma
look at tobacco first | ani-mash-an
dog |
| | ke-wa-ti-na-mo-wi(n)
are you trying beating me? |

Free translation: What is it you say? Are you trying to beat me? Look at the tobacco first, also the dog. Are you trying to beat me?

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|---|--|
| 2. Ka-ba-ba-mi-dji-wag
the flooding and receding river | da-ba-ba-mi-dji-wan
come back again |
|---|--|

Free translation: The high waters in the receding river come back again.

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|----------------------|-----------------------|----------------------------------|
| 3. Wa-ni-se
hill | wa-dji-wig
in hill | ka-ba-bi-ti-ke-ian
he goes in |
| Mi-si-we
all over | wa-dji-wik
in hill | ka-ba-bi-ti-ki-an
he goes in |

Free translation: He goes into the hill. All over the hill he goes into it (something like ants going into their ant-hill nests).

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|-----------------------|---------------------|---|
| 4. Ma-no
let it go | ni-kan
my friend | ka-na-na-to-wi-go
it will be all right to doctor a long time |
|-----------------------|---------------------|---|

Ma-no	ni-kan	wi-ko	ga-na-nato	mi-ko
let it go	my friend	a long time	to doctor	a long time

Free translation: Let it go, my friend. It will be all right to doctor a long time. Let it go a long time, my friend, and [it will be necessary] to doctor a long time.

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|---------------------------------------|--|
| 5. No-da-wa-ke
I am hearing [some] | mi-te-wa-ge
medicine men |
| Ni-wa-ba-ma-ge
I am going to see | dji-mi-te-wi-wat
the medicine dance |

Free translation: I hear the medicine men. I am going to see the medicine dance.

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|--|-------------|--|
| 6. Ni-wa-gi-shi-gwa-ne
crooked tails (as of snakes) | ni-na
me | ani-dje-ni-shi-nabe ^a
is my Indian |
|--|-------------|--|

^a Shi-nabe equals "my" or "ours." Shi-nabi ogema is "our agent."

Iie-dashi-mi-kwen	ni-na	nida-koti-nawa	ni-na
talking	me	trying shooting shells,	me

Free translation: Is my Indian talking to me crooked, like the crooked tail of a snake? I will try to "shoot" the medicine lodge shells.

Song 15: Mite Nagamon (Medicine Singing) by Andy Fields

1. Ni-ka-na	bab-i-ko-te-nag	bi-mi-ga	we-iane
my friend	lots of houses	my tracks	[around] town

Free translation: My friend, my tracks are all around the town. (I, as medicine man, visit all the houses.)

2. Ni-wi-wa-na-ne	ni-io-gan	be-mo-ce-ian-e
I try	four nights	walking

Free translation: I was taking medicine-exercises four nights.

3. No-shi-she-i-tok	i-na-gi-nin	mi-ta	wi-ian
my son-in-law's	look	me	medicine
child			

Free translation: My son-in-law's child, look at [the effects of] my medicine [powers], or look at what I can do with my medicine.

4. We-we-ni	mi-te-wi-iane
easy	my medicine

Ni-mi-no-mi-te-be	ko-sho-nin ⁶
my good medicine	me

Free translation: My medicine dance is easy. My medicine is good. Mine is good medicine.

5. Ia-ia-ni-ne	na-na-we-ka-mik	me-gwa
dodge from the "shot"	way down somewhere in	bear
shells	the country	

No-ni-da-wa	na-gwa	ni-wa-ba-ma
indications that some one	bear	see
is talking off in the thick		
brush		

Free translation: Down somewhere in the country the bear dodges the "shot" medicine shells. Somewhere in the thick brush (woods) the bear sees indications [that some one is there and] talking.

6. Ia-wi-i-i-ie	Ka-gish-gi-si-tot
(no meaning)	Cut Foot

I-gwane	me-te-wi-ian
my brother	my medicine dance

Free translation: Cut Foot, my brother, [that is] my medicine dance (singing).

⁶ *Koshonin* is "me," "my," "mine," usually "mine."

Song 16: Kay-gi-we-iash Sa-gi-ma-na-ga-mon
(O. M. Johnson's Singing)

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|--------------------------|------------------|------------------------|
| 1. Ka-bi-si-da-go-man | a-king | w-ie-na-bit |
| my sign is that some one | [the] earth-land | sitting down somewhere |
| is talking away off | | |

Free translation: By my sign, some one, sitting down somewhere away off on the earth-land, is talking. I see mirrored in the water that some one is sitting down.

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|------------------------------|------------------------|
| 2. I-ie-shi-na-gi-wi-o-ian-e | ki-wa-ba-ma |
| look at my clothes | see |
| Ni-to-bwa-ka-ne | i-ie-shi-na-gwi-o-iane |
| five sm king pipes | look at my clothes |

Free translation: Look at my clothes. Also see five smoking pipes. (Repeated.)

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|-------------------------|---------------------|--------------|---------|
| 3. Ie-ishi-na-gwi-oiane | ni-kan ⁷ | o-ma-gok | o-te-ig |
| look at my clothes | my friend | bear | heart |
| Iie-shi-na-gwi-oiane | ni-kan | otonig | |
| look at my clothes | my friend | bear's mouth | |

Free translation: Look at my clothes, my friend. Also look at the bear heart. Look at my clothes, my friend. Also look at the bear's mouth.

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|--------------|----------------------|----------------------|
| 4. A-we-gwen | ni-kish-win | aia-na-we-da-mo-kwen |
| whose that | fellow | that's no good see |
| Ni-kan | o-da-na-ki-ba-wa-dan | ni-te-wi-win |
| my friend | good sleep | medicine dance |

Free translation: Who is that fellow who is no good? See, my friend, he is having a good sleep at the medicine dance.

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|-----------|-------------|-----------|--------------|
| 5. Winawa | ni-ti-gok | ni-ka-nag | mi-to-win |
| this | [I] ask you | my friend | medicine man |

Free translation: I ask you this, my friend medicine man.

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|-----------|-----------|-----------|---------|-----------|
| 6. Winawa | nitogok | nikanag | nagamon | nitigok |
| this | I ask you | my friend | singing | I ask, me |

Free translation: I ask you this, my friend. I ask you, Are you singing for me?

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|--------------|-----------------|------------|
| 7. A-nin | e-go-teg | a-bi-i-ian |
| what you say | how long wigwam | living |

⁷ One speaker would pronounce this word "ne-kan," another "ne-kahn," and another "ni-kan." The word was pronounced "ne-kahn" by the singer at the time the song was chanted to the author. The same is true of many other words in this article. In one song they may be pronounced one way, and in another quite differently though the spelling of the word is the same. The connecting sounds before and following a word also often modify the initial and terminal sound, or syllable.

Free translation: What do you say? How long have you been living in the wigwam?

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|--------------|---------------------------------|----------|
| 8. A-nin | e-go-we | mi-ia-we |
| what you say | how far do you halloo <i>or</i> | all over |
| | how far do you send | |
| | your talking? | |

Free translation: What do you say? How far can you send your voice? (*Answer:*) Everywhere.

Song 17: Ho-ho-ho Mite Nagamon
(Po-po Martin's Medicine Song)

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|-------------------------------------|---------------|------------------|
| 1. Ia-gi-to | gwa-ni-da | mi-shi-ma-da-gwa |
| feathers (medicine man is carrying) | | bear skin token |
| Ia-gi-te-gwa-ni-da | mi-shi-bi-shi | bi-mi-ka-we-da |
| feathers (medicine man is carrying) | mountain lion | track |

Free translation: The man with the feather[s] has a bear skin token. The man carrying the feathers [also] has a mountain lion token (foot).

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|--------------|--------------|---------------|---------------------------|
| 2. Ni-gwe-se | o-ko-naia-sa | shi-ma-da-gwa | o-wi-ia-wiag |
| my son | close | bear | my will (<i>or</i> wish) |

Free translation: My son, it is my wish that you keep close to the bear (i.e., the instructions in the bear ceremonies).

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|------------|-------|----------------|-------------|
| 3. A-wa-ke | win | me-ni-to-wit | ki-bi-na-ne |
| try | this | god | shells |
| A-wa-ke | win | shwa-ni-ia-wit | ki-bi-nan |
| try | these | wampum-like | shells |
| | | money | |

Free translation: Try these, the shells of the gods. Try these; they are like money shells. (Try these shells of the gods. Try the wampum.)

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|-----------------------|---------------|-------|
| 4. We-bi-da-ga-ni-ian | shi-ma-da-gwa | o-nig |
| pocket-medicine bag | bear | foot |
| We-shi-shi-gwa-ni-ian | shi-ma-da-gwa | te-e |
| little medicine drum | bear | heart |

Free translation: The little medicine bag is a bear's foot. The little medicine drum is the bear's heart. (The little medicine drum represents the bear's heart.)

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|--------------------|---------------|------------|-----------|
| 5. Wa-ba-ma-ga-ne | shi-ma-da-gwa | kimin ine, | ma-da-bit |
| seen after a while | bear | this me, | sit down |

Free translation: I will see the bear after a while. I am [now] sitting down here.

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|----------|--------------|---------------|
| 6. Ni na | we-to-ni-ian | shi-ma-da-gwa |
| me | mouth | bear |

Free translation: My mouth is like a bear's mouth.

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|----------------------|---------------|----------------|
| 7. Be-mi-ka-we-in-na | shi-ma-da-gwa | sho-ka-we-fnan |
| see track | bear | see track |

Free translation: I see a bear track. I see the track.

Song 18: E-na-ka-mi-ki-nag Sa-si-ma-na-ga-mon
(Andy Field's Medicine Singing)

1. Ni-bi-na-se-da-wag
somebody go see

Metwo-kagi-kito-wate	osh-ki-na-wa-gig
talking	middle of the earth

Free translation: I hear talking in the middle of the earth. Somebody go and see.

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|-------------------------|-----------|---------------|----------|
| 2. Ni-ma-mi-no-ki-sh-we | n'-kan | nigote | ekitoian |
| good talking | my friend | after a while | talking |

Free translation: It is good talking. My friend will hear good talking after a while.

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|-----------------|----------|----------|---------|-------|
| 3. Wa-ia-se-ia- | ni-bi-we | we-tinag | awesi | manwa |
| ga-mig | | | | |
| pure clear | water | find | animals | bear |

Free translation: The bear finds pure, clear water for the animals.

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|---|-----------------|
| 4. Ka-gi-dji-wa-nok | wa-wa-ba-mi-ian |
| head of the river in the lake (the begin- | sees me |
| ning of a river that has its | |
| source in a lake) | |

Gish-a-we-ni-min	we-dji-wa-ba-mi-ian
kisses and fondles me as a mother	it sees me
does her babe	

Mo-ki-dji-wa-nok	wa-wa-ba-mi-ian
the spring (source of the river)	secs me

- | | |
|-------------------------------|------------------------------------|
| 5. We-da-ka-mig-o-ke | ki-sho-we-ni-mi-ne |
| all over the country you make | over me as a mother makes over her |
| | babe |

We-dji-wa-ba-mi-iane
you see me

Free translation: All over the country when you see me you make over me in a loving way. *Or better:* Everywhere you see me you make love to me.

- | | |
|--------------------------|-----------------------------|
| 6. Ne-ba-mi-shi-mo-a-gwa | o-mishi-nia-gi-na-go-gwek |
| somebody dancing | goddess of the big mountain |

Free translation: There is somebody dancing. It is the goddess that lives in the big mountains.

7. Ka-iam-we oninamawishin minig a-wa-si-iag
 Kaiamwe gave or gives to me all animals

Free translation: Kaiamwe gave to me (or us) all the animals [for our use]. (Kaiamwe is the name of the god[dess] that lives in the big mountains toward the south from Nett Lake, evidently the Mesabe Range of mountains.

8. Ne-ia-bi-ka-ti-nag ba-ba-na-ga-mo-ian
 Mesabe Range sings

I-ba-na-be e-go-ian
 zenith god (half-way sky god) my name

- Ne-ia-bi-ka-ti-nag ba-ba-na-ga-mo-ian ko-iam-we
 Mesabe Mountains sings zenith god

Free translation: The half-way god of the Mesabe Range sings my name. The half-way sky god of the Mesabe mountains sings my name.

Song 19: Enagamiginag Onomanashgwenagamon

(Andy Field's Medicine Song)

1. Wi-si-gi-ma-ni-to-wi ni-sho-ki-ma-ni-to-wi
 we are your gods two times you are our gods

2. Ma-ne-do-wi-kam-ig ado-ta-mi-ke ni-ki-bi-ti-ke
 God's medicine house somebody tells me I go into [the medicine house]

Onamanetowigamig otodamike nikibitige
 god's medicine house somebody tells me I get into medicine dance

Free translation: Somebody tells me I shall go (or be admitted) into the medicine dance in the god's medicine house. Somebody tells me that I shall get into the god's medicine house in the dance [there], [for] two times [something has said to me], "We are your gods, [and] you are our gods." (?) (The above, includes 1 and 2.)

3. Be-ga-na-bi-te shi-ma-da-gwa-ni-no ma-ni-to-wi-gwen
 there sit bear god

Free translation: There sits the bear god. (This the medicine man says as he points to a stuffed bear skin, or to the place in the heavens where the mythical bear god is supposed to dwell.)

4. Ka-gi-dji-o shi-ma-da-gwa wi-ki-wa-mig
 walking slowly because sore bear medicine lodge

A-ia-dji-o she-ma-da-gwa wi-ki-ma-mig
 changes his clothes bear medicine lodge

Free translation: The bear [god] is walking slowly in the medicine lodge because he is sore [from dancing so long]. The bear changes his clothes in the medicine lodge. (After this mock change, the bear actor dances rapidly on the return around the lodge.)

5. Wa-sa ni-to-ti-na-wa ki-ga-ni-nan bo-kot
 for I shoot friends on this side

Explanation: In this act each dancer points his medicine bag toward some looker-on and blows his breath over it toward him (or her) and this one falls down as if struck by some powerful shock from an unseen source. He then gets up and falls in line behind the man who "shot" him and proceeds to "shoot" others. When white people are present, the actor who is "shot" does not usually fall down, but he always dodges as if trying to escape a blow from something, and then falls in line in the dance immediately following the one who "shot" him.

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|-----------------------|------------------------------|
| 6. Ka-gi-ke mi-nwe-we | ni-mi-te-wa-ian |
| good music | shaking music |
| Ka-gi-ke-mi-mwe-we | ni-mi-te-wi-gan ^a |
| good music | shaking music |

Explanation: The actor is here playing his rattle-drum as he sings this song. The words which he repeats are: "Good music, shaking music."

- | | | | |
|------------------|--------------|--------------------|---------------|
| 7. Ke-go-in-oake | ni-kan | ni-go-dji-mi-te-we | kawabamig |
| don't point at | [my] partner | some place | he'll see you |

Free translation: Do not point [the medicine bag] at my friend (partner), as he will see you. (Meaning the opposite, that he should point it at him and get him to join in the dance.)

- | | |
|--|-----------------------------------|
| 8. A-ni-qi-i, bo-ni-iane | ni-so-ka-mig, bo-ne-iane, wikiwan |
| what would happen if I let alone three medicine lodges | |

Explanation: It is difficult to get any meaning out of this stanza. *Boni-iane* (*bone-iane*) is used by these Indians much as we use the word "let"; but the sentence, "What would happen if I let three medicine lodges?" has no meaning. It would seem to mean, "What would happen if I went away from the three medicine lodges?" The next stanza seems to answer this.

- | | | |
|---------------------|-------------------|---------------|
| 9. Eshi-na-gwi-oian | abosh-ke | shi-ma-da-gog |
| the looks of you | if you don't care | bear |

Free translation: (This would seem to mean) If you do not care [more for yourself than that], the looks of you are just like those of a bear (*literally* a female bear).

Song 20: Mite na-ga-mon O-ka-be-ki-shig
(Medicine Song by All Day)

- | | | |
|--------------|------------------|-------------|
| 1. Ni-kan | o-wi-ia-wi-ia-ne | bo-sh-ke |
| partner | soul | if you care |
| Ki-ne-bi-kok | o-wa-ko-wat | ni-kan |
| snake | eggs | partner |
| Bo-sh-ke | mi-ti-gok | o-wa-ko-wat |
| if you care | trees | eggs |

^a In the *gi* and the *gan* it is hard to get an English equivalent. The *g* has a sound somewhere between our *g* and *k*.

Free translation: If you wish your spirit to increase in power take notice of the increase of a snake from its eggs. My partner, if you wish your soul to increase in power, take notice of the increase of the trees by their seed producing parts. (This stanza is very difficult to translate.)

- | | | | |
|-----------------|-----|---|------------------|
| 2. Gi-wa-ban | ina | eshi-ian | ikine-bi-kwa-ian |
| see | me | talking | snake [skin] |
| Ne-na-bo-wi-ian | | ne-wa-bi-shi-mok | |
| talk to me | | as it is placed in a certain position in the middle of the dancing area on the ground and a person dances upon it | |

Free translation: See me talking to the snake skin. Also see it talking to me as it is placed in a certain designated position in the middle of the dancing area on the ground and a dancer dances on it. (This represents an act in the dance, or, rather, this scene is acted out in the dance. The snake skin is exhibited by the medicine actor as he sings. In the closing part of the act he usually throws the skin on the ground and dances on it.)

- | | |
|----------------------|--------------------------------------|
| 3. A-io-wi-bi-mi-na | wa-ni-te-mo-sa |
| shells | brother |
| A-wi-ni-ni | ni-na-na-to-na-wa |
| the man is concealed | you shoot just where you think he is |

Free translation: My brother, the man is concealed. You "shoot" the medicine shells where you think he is.

- | | | |
|--------------------------------|---------------|--------------|
| 4. Ga-ga-wa-ia | o-wi-bi-mi-na | ki-ka-ni-nan |
| something like the quills | shoot[s] | brethren |
| of a porcupine (but imaginary) | | |

5. Ki-da-sha-we-ni-nom-ni-mon

- | | |
|--------------------|----------------|
| 6. Ka-ka-ki | da-ma-ni-ti-wi |
| the crow | is god |
| Wi-na-ge | da-ma-ni-to-wi |
| the turkey buzzard | is god |

Song 21: The Ogemah Dance Song of Farmer John,
Sung by his Son, Ne-be-day-ke-shig-o-kay (George Farmer)

- | | | |
|----------------|----------------------|---------------------------|
| 1. ni-ka-gi-na | ni-o-ka-na-gi-mi-kog | manitog (yay-hay'yah-hay) |
| all people | select | gods |

Free translation: The gods select all people.

- | | |
|----------------|----------------------|
| 2. Ni-ka-gi-na | ni-ki-o-na-gi-mi-kog |
| all people | select |
| Manitog | ki-wi-da-gi-shig-oge |
| gods | all around the sky |

Free translation: The gods select every one all around the horizon.

E-ie-i-na-bit
(no meaning)

yay-hay-yay-hay
(no meaning)

3. Mi-si-we-ma-ni-tok ni-sha-we-ni-mi-kog Yay-hay-yay-hay
all round, gods they love me
everywhere

Ka-gi-na
all

man-i-tog
the gods

ni-sha-we-ni-mi-kog
love me

Free translation: The gods everywhere love me. (The term "nishaweni-mikog" equals "affection extending to fondling and kissing as a mother does her babe.")

4. Ka-ba-bi-dji-no-wag ki-shi-ke mi-si-we
wind is coming sky all over
Ki-shi-goge ga-wa-odji-noweg way-hay-way-hay
sky wind is coming

Free translation: The wind is coming from all over the sky; the wind is coming from the sky.

5. Me-twe-nana-go-mi-to awasikishigoge e-bi-gwen
is talking to me other side of sky somebody

Manito
god

yay-hay yay-hay
(no meaning)

Free translation: Some god is talking to me from the other side of the sky.

6. Ka-da-da-bi- kishike notin (yay-hay-yay-hay)
noweg
coming pretty sky wind
quickly

Free translation: In a few minutes the wind will be coming from the sky.

7. Ni-bi-wa-ba-dan e-dah-nah-gi-ia-ban
we come to see where I used to live
Mi-ki-nin-oma agig oda-na-gi-ia-ban (yay-hay-yay-hay)
that is where on earth where I used to live

Free translation: We come to see where I used to live; and there on earth that is where I used to live. (This is what the medicine god is saying to the medicine man.)

As actually sung the above, was arranged as follows:

1. Ni-ka-gi-na ni-o-ka-na-gi-mi-kog manitog, yay-hay-yay-hay.
2. Mi-si-we ma-ni-tok ni-sha-we-ni-mi-kog ka-gi-na man-i-tok nisha
we-ni- mi-kog, yay-hay-yay-hay.
3. Me-dwe-na-na-go-mi-te a-wa-si-ki-go-ge o-bi-gwen manito, yay-hay-
yay-hay.

4. Ni-bi-wa-ba-dan e-da-na-gi-ia-ban mi-ki-nin-o-ma a-gig e-da-na-gi-ia-ban, yay-hay-yay-hay.

5. Ni-ka-gi-na ni-ki-o-na-gi-mi-gog man-i-tog ki-wi-da-gi-shig oge e-ei-i-na-bit, yay-hay-yay-hay.
(And so on.)

Song 22: Kinebigwashgwenagamon
or Snake Song

1. Ish-go-te-wa-ne ni-ia-we
fire inside me (*or just me*)

2. Shi-shi-gwen-wa-ne ni-ia-we
soul inside me (*or just me*)

Free translation: There is fire within me. My soul [is] within me.

3. Ni-ia-we wa-ba-dan
me look, see

Free translation: Look at me and see.

4. Ni-ka-nag ni-wi-to-ka-wa-ke ka-gi-na
all

Ni-te-wa-ke ni-wi-to-ba-nag
medicine men eating

5. Da-o-na-gi-shi-ne ki-mi-sho-mi-si-nan
somebody swoons my mother's father

O-to-bwa-ga-na-ne da-ona-gi-sin oto-na-ga-ne
five smoking some put down dishes five

Explanation: In this act the novitiate is "overcome" by the strong medicine "shot" into his person from the medicine bags, the same entering his heart, and he falls in a swoon. His mother's father (or some other relative) then comes and lifts him up and he is prayed over. The five leading medicine men then take a smoke and the five plates of soup are set out for them.

6. Wa-na-ni-ka-na e-ti-ia-ne-i
partner not sick

Explanation: The novitiate is now no longer sick. He is now past the pretended sick stage in the performance.

7. Ki-wi a-ia-dji-mi-go mi-ka-ne
somebody is talking [to] my partner

Ki-wi-wa-wa-ban-ni-go ni-ka-ne
somebody sees [my] partner

Free translation: Some medicine man is talking to the novitiate. Some one is also paying attention to him so that he will learn the lodge ceremonies properly.

8. Ni-ia-a-dji-mi-go ni-ga-ne ni-gi-ne-bi-gwa-ian
somebody takes [to] partner snake skin medicine bag

Na-no-te-a-go-wet
not much talking [to]

ni-ka-ne
partner

Free translation: Somebody takes the ceremonial snake skin medicine bag and presents it to the novitiate; he, however, talks but little to the novitiate.

9. Ka-bi-ni-dji-wa-no-kwen
[like] running

ki-ni-bin
water

10. Win-sa-ka-ne-we-na
somebody takes

ma-ga-te-shi-shi
black snake's tail

Kwe-wa
teeth

wi-sa-ga-bi-te-na-wi
somebody takes

Free translation: Somebody takes the skin [of the black snake] by the tail; and somebody [takes it by] the teeth [in the performance].

11. Ia-a-wi
?

shi-shi-gwe-wa
big snake

o-ni-dje-ni-san
little snakes (eggs)

Ni-ki-ga-da-me-shi-ma
inside

Explanation: In this act the medicine actor exhibits a big snake skin as he offers up a prayer in behalf of the novitiate, which means: "May your offspring increase upon the earth as the snake's does, and may you have power, both charm and cunning, as the black snake has."

Song 23: By Tom Farmer—Wabeno Wagamon (Wabeno Song)

Each of the following parts is sung over from two to ten times:

1. In-ni-gwan-ni-sa
my brother-in-law

ka-no-da-we
hears me

wi-i-wi-wi
(no meaning)

In-ni-gwa-ni-sa
my brother-in-law

ka-no-ba-min
sees me

wi-i-wi-i
(no meaning)

2. Be-ba-mi-dje-wak
floating

ki-dji-ga-mi-we
ocean

Be-ba-mi-bo-got
floating

ki-dji-mi-ki-nag
turtle

* * * * *

3. A-ia-a
coming

gi-dah-i-sa-ga-dji-we
hill

A-ia-a
coming

gi-dah-i-sa-ga-dji-we
hill

* * * * *

4. O-na-ma
?

in-dah-wah-aish-gwe-
ga-mi-gag
I got [it] the edge [of]

mi-ki-oti-na
the land

5. Io-o
? gi-dji
big

i-shgote
fire

io-o
?

madji
bad

ishgote
fire

6. O-na-to-ne-wag shooting I am		a-do-ne-wag looking, I am	
7. Wa-sa far	wa-sa far	in-da-na-to-ma-a want them to come	we-si animals
Ke-ka-me-wa-go-ka-net with long legs	be-sho a little way	be-sho a little way	
Ni-do-o-to-ma packing	me-got-te-wi-sit black	aw-e-si animals	
8. O-dji-da I can	o-dji-da I can	ni-mi-ga-wa find	a-we-si animals
	* * *	* * *	* * *

Explanation: The parts of the song are explained as follows:

1. "My brother-in-law (the daylight) hears me. My brother-in-law (the daylight) sees me." The medicine men imagine that Daylight is a person and is listening to their supplications.

2. "Floating ocean" means the water that surrounds the land; "floating turtle" means the land surface of the earth. The waters of the earth are believed to be flowing about on the upper side of the "earth-plate" mentioned above (see p. 336), and in this great sea is the land surface of the earth floating about like a huge turtle's back sticking above the water. The stanza means: "I see the floating ocean. I see the floating turtle" (that is, the land surface of the earth). The medicine man sees this in his mind's eye, in his imagination as he delves in song. These also hear him in his supplications, he believes.

3. "Coming hill, coming hill." This means that somebody (a *manido*) is coming up the hill.

4. "I use [it] the edge of the land, bad medicine" or, "bad medicine, I use it, edge of the land." A long time ago the Indians had a bad medicine man and bad medicine; and the medicine man is singing to keep this medicine man and his medicine off the edge of the earth. Freely rendered it would be "I use this (his medicine) to keep the bad medicine man and his medicine off of the edge of the earth."

5. "Big fire; bad fire." This means: "I see a big fire. I see a bad fire." The medicine man here refers to the blazing comet or meteor that crosses the sky. He may have seen the actual comet, or it may have been only a product of his imagination, but with the Indian, as with many white people, a comet is an omen of evil, and the Indian used "medicine" to keep it from harming the earth.

6. "I am shouting. I am looking." Here the medicine man is shouting and hallooing and looking to get the attention of the *Wabeno manido* (the god of the morning). He acts this out just like a person looking for some one who is lost.

7. "Far, far, want them to come, animals with long legs, a little way, packing black animals." Freely translated this is: "I want some [spiritual] animals to come from a long way off. [I want them also to be] black animals with packs on their backs." This is the prayer the medicine man is repeating

to his manido after he has found him (in the 6th stanza). In the next stanza he finds the animals sought.

8. "I can, I can find black animals, black animals." That is, "I am able to find, I tell [you people], I am able to find the animals, the pack animals [I prayed for]." The pack animals are the pack animals of the manido and are bringing presents to the people, trade articles, plenty of fish, plenty of serial crops and berries, plenty of fur, plenty of game, and increase of the human family.

Song 24: By J. K. Redbird

Ya-hay- ah-a-hay ya-hay ah-a-hay ya-hay ah-a-hay
 We are to have a dance for the visitors that come. (Repeat.)
 Ay-hyah-ay ay-hyah-ay ay-hyah-ay yah-ay hay-ah ay-yah-hay
 Ay-he-yah ay-yah-hah ay-yah-hah ay-yah-hay. (Repeat.)
 Ay-hah ah he-yah hay hay ah-oh
 Yah-hah ah he-yah hay-hay-ah-oh (Repeat four times.)
 Yay-yah ay-hah hay yoh hay-hay-o.

Song 25: O-ka-be-ke-shig mi-te-nag-a-mon

(All Day's (Singing) Medicine Song)

- | | | |
|----------------------|----------------|------------------|
| 1. Bi-da-sa-mo-se | ma-ne-to-wi-da | o-da-sa-mo-se |
| somebody seen coming | god like | coming down here |

Free translation: There is seen coming somebody god-like in appearance. This somebody is coming here.

- | | | |
|------------------|----------|---------------------|
| 2. Bas-to-se-ian | ni-kan | |
| me-see coming | friend | |
| We-dji-mo-ka-age | man-e-to | wi-ka-mi-gok |
| sun [coming up] | god's | wigwam ⁹ |

Free translation: My friend, I see the sun coming up over the wigwam of the manido.

- | | | | |
|----------|----------|-------------|-----------------|
| 3. Wi-na | ni-ga-na | be-ma-o-ian | me-te-wig-a-na |
| my | friend | try | medicine wigwam |

Free translation: My brother (friend), try to join the medicine lodge.

- | | |
|-----------------|------------------------|
| 4. Ka-wa-ba-min | ke-bi-i-ni-go-ne-ia-ne |
| see you | like the light coming |
| I-to-nik | i-to-nik |
| mouth | mouth |

Free translation: I see you as I would see a light coming from your mouth. (Not very clear but seems to mean, "I see you as distinctly as I would see a light through a window.")

- | | |
|------------------|-----------------|
| 5. Shi-ma-da-gwa | dji-mi-mo-si-an |
| bear | walking |

⁹ God's wigwam (wigwam of the manido also medicine lodge).

I-te-mo-sa	dji-o-da-bi-nag
my close friend	I take it

Free translation: My close friend, I take the bear walking.

6. Ni-na-ni-gi-a	e-te-mo-sa	dji-o-da-bi-nag
shivering as from cold	m close friend	I take you

7. A-ni-da-ian-ine	mi-te-wa-ni-ni-wag
he got it	medicine man

O-ha-ki-dji-ka-ni-wan	o-da-tan-ka-ni-wan
goods, blankets, and so on	also pipe

Free translation: The medicine man got the goods, blankets, calico, etc., also the pipe.

8. Ba-bi-ke	ni-da-na-ia-ni-kog
now	not much good me

Ni-ka-nag	e-da-shi-wat
my friend	all

Free translation: My friend, I am not much good. All (everything) is not much good now (any more).

9. Wa-e	ni-ko-dja-a	o-ki-ma-wa-bo
?	try	chief eater

A-ia-wi-bi-ian	sho-ni-ia	wa-bo
shells	money	drink

Free translation: Let the chief try to eat shells and drink money. Or The chief tries to drink from the medicine shells and eat from the money (shells). (This is quite difficult.)

10. O-ka-be-gi-shing	ma-to-dok
All Day's	sweat house singing

11. Wi-i-i	ni-no-da-mo-wan	odon	ebi-te-nig
?	signs (making motions)	mouth	like shaking the mouth with the hand

Free translation: Somebody is making signs with his mouth, just as if he were shaking his mouth with his hands.

12. O-te-da-ga-nag	e-ic-na-ge-shi-nan
somebody is coming	behind fluttering owl (coming behind me fluttering, flapping its wings over the ground trailing me.)

Free translation: Something is coming. It is an owl trailing me. It is behind me fluttering and flapping its wings over the ground.

Before leaving this subject, the writer believes he should add a word of explanation concerning the Bois Fort Ojibwa medicine

lodge or Grand Medicine Lodge (Society), so that the reader will get a clear idea of the meaning of the above songs.

THE GRAND MEDICINE LODGE SOCIETY (MITAWIT,
MIDEWI, OR MIDEWIWIN)

The actors in this Grand Medicine order are mystery men (*mide*) or medicine men. Their profession is incantation, exorcism of demons, and the administration of shamanistic or magic remedies.

As is indicated in the name, the order is an organized society. It is graded into four separate and distinct common degrees, and at Nett Lake four special degrees have been added, making eight in all. Both sexes are admitted to it. Admission to membership in the degrees is considered of great importance and consequently is difficult and is preceded and followed by elaborate ceremonies. As a rule, a male candidate is one who has been selected for that distinction by the presiding medicine man at the "giving a name" or birth ceremonies of that respective person, the medicine man then assuming the office of god-father for the child. From that date on the parents of the boy gather presents to defray the expenses of his preliminary instruction by a selected medicine man when he reaches the age of puberty, to pay for the feasts given to all who attend the initiation ceremonies, and to furnish the required presents to the medicine men on that occasion.

Obtaining a degree often involves a candidate hopelessly in debt. Should he fail to liquidate the same, his relatives are expected to assume the responsibility thus incurred. The writer has known Bois Fort Indians to live in a starving condition for years, so that a member of the family could take one of these degrees. One aged, indigent woman at Pelican Point (Orr, Minnesota), had saved (starved), it is said, for thirteen years so that she could take the fourth degree before she died, so great was her desire to become an acknowledged medicine woman.

In this society, as maintained at Nett Lake, there are preserved the traditions relating to cosmogony and the genesis of mankind.

It also teaches that an anthropomorphic deity appeared on earth in the long ago and interceded between Che-manido (Kitshi

Manido) and the Indians. He taught the latter the means where-with they might provide themselves with the good things of earth and the power of warding off sickness and death. He gave to the Indians the various plants and instructed them in their uses.

This being is known by the name of Manabush (Manibusr *or* Minabozo). The account of his life on earth, what he did for men, and the rites and ceremonies alleged to have been prescribed by him are dramatically rehearsed at the initiation of a candidate into the society.

The society holds its services in a long, loose wigwam, called "medawegaun." Some of these are ten feet high, a hundred feet long, and twenty feet wide. The framework is complete, but the bark or canvas cover usually extends only half way up the sides, the top being open; sometimes the upper framework is also omitted. Along the center of this house, running the long way of the same within the framework, a pole, supported by posts, carries the presents the initiate is to give to the medicine chiefs.

When dancing, they proceed in a continuous row from left to right around the center pole and its presents, giving them the appearance of dancing in two rows. They all carry animal skin medicine bags as they dance, and as they pass the initiate they shake these over him or at him uttering hoarse sounds of various kinds. Also, when setting out from the eastern or starting post in the eastern end of the lodge, each one utters a hoarse "Ho, ho, ho," or other guttural expression as he shakes his medicine bag, holding it in both hands in front of him with its head pointing westward. Only members of the society are admitted, but any one who wishes may look on at the ceremony from without the hall.

Four of the medicine men act as initiating officers. These are provided with drums and rattles. One of these also has a kona-pamik (or cowry) shell (*Cyprae moneta*), the sacred emblem of the Metawit (medicine lodge order), and as he shakes the rattle and sings in a guttural voice he runs the lodge-dance course around the center pole, followed by the other medicine men. As they thus proceed they pass the novitiate who is seated on a new mat so as to face the center pole of the lodge. One after the other dances

about him (the novitiate) in turn, singing and gesticulating the initiation songs. As a final act they "shoot" him with the sacred konapamik shells, pretending to blow them into his head or breast, whereat he falls as if dead and lies in an apparently lifeless stupor. Quickly the medicine fraternity gather around him, manipulate and rub him with the medicine bags and pray and utter incantations over him till he "recovers," after which he spits a sacred shell from his mouth, pretending it is the one with which the medicine man had "shot" (or pretended to "shoot") him; but which he had previously concealed for the act in his mouth. As soon as he has spit up the shell, he sits upright and later, rising, is given a medicine bag as his lodge badge. This concludes the essentials of the ceremony.

The distribution of the presents follows this act.

The Nett Lake Indians also have a ghost society, which is a variation of the Grand Medicine Lodge, the ceremony being to all appearances about the same as that of the Grand Medicine Lodge proper.

Should any person, who has been set apart by the medicine priest to be dedicated to the Medicine lodge, die before the time set for the initiation, provided he is an adult, the relatives announce the fact to the chief medicine men at a specially called meeting (feast) at the lodge of one of the mourners. After the proper preparation thereafter, the chief mourner is initiated into the society as a substitute for the deceased, and the feast he gives is the "feast of the dead." The whole ceremony, including the feast, is designed to release the deceased's "shadow" from the "shades" and permit it to depart to the "land of mysteries in the happy hunting ground."

After the death of twenty-two infants from cholera infantum in the fall of 1913, we had a ghost ceremony almost weekly till I left the region the next year. Also, since the infantile mortality has increased, children are initiated into the society either in person or by proxy.

Another case of initiation by proxy is when a sick youth is brought to the ceremonial structure for restoration to health as a last resort, all the other and ordinary efforts of the shamans to

cure the patient with exorcisms and incantations having proved futile. Sessions of the society are also held for the sole purpose of curing the sick. This mode of doctoring is, in fact, becoming more popular every year.

KAYENTA, ARIZONA

BOOK REVIEWS

METHODS AND PRINCIPLES

A Text Book of European Archaeology. Volume I. The Palaeolithic Period. R. A. S. MACALISTER. Cambridge University Press, 1921. xv, 610 pp.

The prehistoric archaeologist enjoys an *embarras de richesses*; in 1921 there were published three works dealing with the early Old World, viz., *Prehistory*,¹ *L'Humanité Préhistorique*,² and the book under discussion. In addition to these the *Éléments de Préhistoire*³ has just been given greater publicity. Macalister's work is the most detailed and is limited to the Old Stone Age and to the industries that partly fill the gap preceding the New Stone Age.

The author sets himself a method of treatment and rigorously carries it out; quite in the grand style he begins with prolegomena geological, palaeontological, and anthropological.

There follows the discussion of the human remains and of the human implements in the eolithic and the three palaeolithic stages, which he subdivides as (I) the Chellean and Acheulian, or lower, (II) the Mousterian, or middle, and (III) the Aurignacian, Solutrean, and Magdalenian or upper.

A summing up of the qualities of man of these periods leads to a chapter on the mesolithic period, in which he places Maglemose, the Azilian, and the Campignian; the author's conclusions form a comparatively short chapter at the end.

The archaeological geography of Europe presents us four zones and eighteen subordinate regions. The zones are: Mediterranean, Central, Northern, and Eastern; this is good and it is well to remember that modern national lines as such had no importance in prehistoric times.

Macalister is in line with many in placing the first undoubted human industry (the Chellean) in the last or Riss-Würmian glacia-

¹ M. C. Burkitt, with a preface by the Abbé Breuil: Cambridge University Press.

² Jacques de Morgan: *La Renaissance du Livre*, 78, Boulevard Saint-Michel, Paris.

³ D. Peyrony, with a Preface by Dr. Capitan: Eyboullet Frères, Ussel. (Dépôt au Musée des Eyzies, Dordogne.)

tion and the Mousterian during part of the last Ice Epoch; the climatic variations that followed may be explained by the Bühl, Gschnitz and Daun stadia and metastadia; they accompany all the upper palaeolithic and the mesolithic. While more complicated, this arrangement is after all not unlike the simple one we used to believe in, namely, that each palaeolithic period fell in an interglacial epoch.⁴

The palaeontology of the Old Stone Age is clearly set forth and practically all the species represented in ancient art are illustrated by figures in the text; for reference, also, the fauna of the different sites is given in extenso; we find palaeontological tables for Chelles and the Somme Valley; for La Naulette, Spy, La Chapelle-aux-Saints, Saint-Brelade (Jersey), Krapina (very detailed), Der Sirgenstein; for Předmost (Moravia), Grotte des Hoteaux (Ain), Ofnet Caves in the Jura Mountains, and for Kesslerloch (Switzerland). A great many cross sections of the deposits at famous sites are recorded in tabular form; it is difficult to see how a better arrangement could have been devised.

The history of man himself throughout is studied with great minuteness, and each discovery of human remains investigated impartially; only those are recognized as genuine which leave no reasonable doubt in the author's mind; he uses the same method as the two De Mortillet in their great handbook, and like them accepts and rejects with a good deal of confidence.

Not always do they arrive at the same conclusion; e. g., the De Mortillet assign the Brünn skeleton to a neolithic burial,⁵ while Macalister accepts it as palaeolithic, probably Solutrean.

The author denies certainty of pliocene age to Piltown as well as to Mauer; he is in this regard very conservative, leaving them as isolated phenomena showing the existence of a more or less simian man in early quaternary times in northwestern Europe.

His position on the complicated questions of middle and upper palaeolithic races may be thus stated: (1) Mousterian man was almost exclusively Neanderthaloid, and practically covered central and western Europe; (2) Krapina is Mousterian and the brachycephalic fragments may represent a westward extreme outpost of Asiatics; (3) Aurignacian man is best represented by the high-type Cro-Magnons, versed in the beginnings of art and in moderately finished flint-technique; (4) Grimaldi may be a negroid subdivision

⁴ Cf. M. Hoernes, *Der diluviale Mensch*, 1903, p. 8.

⁵ G. and A. de Mortillet, *Le Préhistorique*, p. 277.

belonging to Cro-Magnon; (5) with Solutrean times Cro-Magnon seems largely to have departed and a race of men to have supervened not knowing the fine arts but exceedingly dexterous in flint chipping; (6) The Aurignacians, however, reasserted themselves in Magdalenian times bringing with them the marvellous development in art and a corresponding decline in flint working.

It is to stone, however, that we must look for most of our prehistoric information before pottery; the author makes a refined study of all the forms typical of the eolithic, palaeolithic, and mesolithic periods. "Eoliths"; rostro-carinates; coups-de-Poing; Levallois flakes; pointes Moustériennes; scrapers; front, side, notched, humped, and carinated knives and perforators; the series of Chatelperrons; gravettes; Font Robert, etc.; pointes-à-cran; laurel-leaves and gravers—all these and very many others are described and illustrated in the text; the same care is taken in the cases of the typical bone specimens of the upper palaeolithic.

A large part of the book is devoted to art—the descriptions do not include the "Sorcerer" of "Trois Frères," but the author quite sufficiently accounts for this omission in the Preface. He sides with the school of Salomon Reinach in attributing the existence of the paintings and engravings in the caves to sympathetic magic, quoting the striking argument that the great majority of the species represented are of benevolent animals whose increase in number would be for the benefit of humanity. He admits that Mousterian man had a religion and (p. 343) asserts this as a certainty; he instances the interments at La Chapelle-aux-Saints, Le Moustier, and Spy, and the deposition of stones over the head of the body at La Ferrassie. In all other respects the author is extremely cautious, not to say sceptical, and time and again refuses to accept discoveries in default of positive proof.

Perhaps the severest criticism one can bring to bear on this extraordinary work is to speak of the cavalier treatment of the eolithic question. Fantastic theories, such as those of the "Pierres Figures" deserve ridicule, but it does no good to laugh out of court the claimants for a series of stone types which are exactly what we should expect to find as the result of use by the "precursor of man." If the somewhat irascible proponents and opponents of eoliths would agree on the definition based on technique and not on technology, less confusion would exist. An "eolith" is a stone used intelligently and not shaped in accordance with a preconceived idea of its pur-

pose; as some of the four processes, viz., hammering, cutting, scraping and piercing, must have been in possession of man's precursor, one should look for stones bearing the marks of such use; once they are found, it is germane to ask if we can tell them from the purely natural; we are able to say confidently that in the majority of cases, though not always, we are able to. Finds of eoliths, then, in geological deposits afford a presumption of intelligent life contemporary with those deposits; these may be even pliocene or miocene.

It is likely that Macalister will encounter opposition to his advanced position on Mousterian religion; the fact that an interment is ipso facto later than the strata in which the burial is made should, of course, not be made to carry too much weight of evidence but it must not be lost sight of.

In the chapter on art the aesthetic principle as a motive for making the pictures should be given a larger place; some discussion of free and stylistic drawing, with comparisons of children's drawings in the style of Verworn⁶ would be enlightening.

The book has a good many printer's errors, not all unavoidable, and one wishes for a bibliography and a table of contents "raisonnée." But all in all everyone who cares for archaeology and can read good English will be grateful for this comprehensive and authoritative "magnum opus."

CHARLES PEABODY

AMERICA

The American Indian: An Introduction to the Anthropology of the New World. CLARK WISSLER. 2d Edition. New York: Oxford University Press, 1922. Pp. 474, frontispiece and 82 figures.

The appearance of a new edition of Dr. Wissler's admirable work is an occurrence for which all students of anthropology and of the American Indian in particular should be grateful. Until the time of its first publication, now five years ago, no satisfactory description of the peoples of the New World or discussion of the many problems which they present existed. A vast mass of data had been accumulated as the result of the work of many investigators during the previous twenty or thirty years, but it had not been assembled and digested and the general results presented so that not only the anthropologist but the general reader could grasp their significance. This

⁶ *Zeitschrift für Ethnologie*, 1906, pp. 651 ff.

service Dr. Wissler performed with conspicuous success, and his book became at once indispensable. The new edition is in general appearance an improvement on the first, the wider spacing making a more readable page. Other changes include the omission of twenty or more illustrations, the addition of a few new ones, and, apart from minor changes in text, the inclusion of some new material in chapters XVI and XVIII dealing with chronology and physical types.

In the first case, attention is called to certain broad resemblances between the oldest American cultures and those of western Europe in late Palaeolithic times. The importance is also emphasized of geographic distribution in determining the antiquity of cultures, on the principle that wide distribution indicates greater relative age. The chapter closes with a new and suggestive table of the relative chronology of the central area of intensive culture and the outlying primitive agriculture and hunting areas. Although necessarily tentative, the table helps to focus the whole problem of chronology which is obviously fundamental to the understanding of the culture history of America and its relations to that of the Old World.

In the chapter dealing with somatic characters, the new material added relates to the recent important studies of the teeth, showing the frequency of the shovel-shaped incisor, the five-cusped molar, and the edge-to-edge bite among many of the American Indians. The first of these characters, by its frequency among the Chinese and Japanese, tends to emphasize the racial relationship of some at least of the New World peoples to the Mongoloid peoples of Asia. Dr. Wissler still adheres to the theory of the unity of race of all the American Indians, basing his conclusions on the method of averages; discounts the significance of the wide range of variability in physical characteristics, and pays little regard to the evidence of the historic succession of different types in many parts of both continents. I can not but feel that this is a mistake, and that the use of uncorrelated averages wholly masks the real facts. Only by analyzing the data on the basis of the individual correlation of characteristics can we hope to unravel the problem of racial types and affiliations. Once this has been done and the geographical and chronological distribution of the types resulting given adequate consideration, it is certain, I believe, that the presence of several racial types will have to be recognized.

Although taking account of many of the recent advances in knowledge relating to archaeology and physical anthropology, Dr. Wissler has rather neglected those in the linguistic field, especially as regards

South America. The problem of the division into linguistic stocks of the languages of the southern continent is admittedly a difficult and complicated one. Chamberlain's studies and map, published nearly ten years ago, were a very helpful résumé of the results of investigation at that time. Since then, however, Rivet and others have published a number of important revisions and modifications, which result in the provisional amalgamation of many of the smaller stocks. Of these studies Dr. Wissler has taken no account, and reprints Chamberlain's map without change and without comment. Unfortunate also is the fact that, in reprinting the map, the opportunity was not taken to correct both the errors in Chamberlain's map itself, and also the numerous mistakes in the copy of this map published in the first edition. As these errors were specifically pointed out in a review of Dr. Wissler's book when it first appeared, there seems little excuse for allowing them to go uncorrected in the present volume. The map, fig. 82, giving the locations of some of the South American tribes, is also faulty, containing not only some careless mistakes in spelling (Allentic for Allentiac, Gauranis for Guaranis, Witto for Witoto) but, what is more serious, a number of tribes are badly misplaced. Thus the Mocoan and Coconucan are located in the middle Cauca valley, the Otuquian and Enimagan are placed along the middle Madeira in western Brazil instead of some five hundred miles south on the upper Paraguay, the Muras are located on the Giparaña instead of in the vicinity of Manaos, and the Cariris are put in northern Bolivia instead of in the extreme northeastern part of Brazil. Had the map been even hastily checked up with the linguistic stock map given on page 312, many of these errors would have been prevented.

The present volume is also unfortunately marred by carelessness in proof-reading resulting in some misspellings, many of which have been carried over from the first edition, although specifically pointed out in a previous review. Also by the occasional omission of whole words, leaving the text ambiguous or meaningless; for example, on page 3 "In," the first word of the last paragraph, has been omitted, on page 19 "rarely" has been omitted at the end of the next to the last line of the first paragraph, "of" has been left out in the title of fig. 49, etc. While at the ungrateful task of noting the few errors in this very admirable volume, mention should be made of one or two misstatements of fact. Thus on page 15 in the table of cultivated plants the area of cultivation of the squash is still given as "tropical

America" although its wide use in the temperate regions of North America is well known and explicitly noted in the text. Again, on page 40 it is stated that the double paddle was used only by the Eskimo, whereas its use on the Californian coast from San Francisco Bay southwards is well attested. On the same page also it is said that the "only boat built up of planks was that of the now extinct Santa Barbara of California," although the existence of a similar boat on the southern Chilean coast has been frequently described. Lastly, on page 203, the Charrua are located in the Chaco, whereas their actual habitat (as indicated on the linguistic map on page 312 and the tribal map in fig. 82) was in Uruguay.

These occasional oversights are, however, of little moment in the face of the conspicuous ability with which Dr. Wissler has treated a very large and very complicated problem, resulting in a volume which is quite indispensable for anyone who wishes to get a clear understanding of the culture and history of the peoples of the New World.

ROLAND B. DIXON

OCEANIA

The Fornander Collection of Hawaiian Antiquities and Folklore.

Edited by THOMAS THURM. Bishop Museum: Honolulu, 1916-1919. (Memoirs in Polynesian Ethnology and Natural History, vols. iv, v, vi.)

This Collection, published in text and translation, is by far the most valuable contribution made to Polynesian ethnology and folklore since Krämer's Samoan monograph, and almost the only publication in Hawaiian folk-lore for which the native text is also available. Its editor, Mr. Thomas Thurm of Honolulu, although not a trained ethnologist, has devoted himself during a life-long residence in Hawaii to acquiring a thorough and accurate knowledge of the language and customs of the native Hawaiians, and has done much toward preserving their traditions.

Judge Fornander, the original collector of the tales, was born and educated in Sweden, the son of a clergyman, and first came to Hawaii in a whaling-ship in 1838. From this time until his death, in 1887, he interested himself with untiring energy in the problems of Polynesian race-tradition and affinities. Liked and respected by both foreigner and native, he married into a chief's family, occupied several government positions, and was appointed Circuit Judge of the island of Maui under the Hawaiian monarchy. In 1877 he could justly claim for

himself as equipment for his Hawaiian studies—"Thirty-four years residence in the Hawaiian group, nineteen years position in various offices under the Government; a thorough local and personal knowledge of every island of the group, acquired during numerous journeys," and added to this, "a thorough knowledge of the language." Of his methods as a collector he himself writes,

I employed two, sometimes three, intelligent and educated Hawaiians to travel over the entire group and collect and transcribe, from the lips of the old natives, all the legends, chants, prayers, etc., bearing upon the ancient history, cults and customs of the people, that they possibly could get hold of. This continued for nearly three years; . . . during my many journeys from one end of the group to the other, I never omitted an opportunity in my intercourse with the old and intelligent natives to remove a doubt or verify a fact bearing upon the work I had in hand.

As a result of his investigation appeared his well-known *Account of the Polynesian Race, its Origin and Migrations, and the Ancient History of the Hawaiian People to the time of Kamehameha I* (late 18th century), published in London in three volumes, 1878-85. Fornander's original texts, however, remained in manuscript until their present incorporation by the Museum authorities into the present volume.

The first volume of the series and all but the last number of the second—which contains a useful set of compositions upon Hawaiian legends and customs prepared in Hawaiian text by able students of the Lahainaluna seminary of the last generation—is occupied by the Fornander texts. They include, besides a group of chants describing the formation of the islands and their early settling from "Kahiki," some forty hero-tales, romances, ghost stories, and anecdotes varying in length from a few lines to fifty pages, in some cases with more than one variant. Many contain important specimens of ancient chants and songs with a context describing the occasion of their composition. A large number of the tales are entirely new to those familiar with Hawaiian legends already in print.

The third volume holds, besides important papers by Hawaiian scholars upon religious ceremonial and sorcery from the collection of Prof. W. D. Alexander, Judge Fornander's collected genealogies and explanatory data. In the last number of this third volume appears also the admirable collection of Hawaiian chants brought together by Judge Lorin Andrews, compiler of the Hawaiian dictionary, and includes Andrews's own translation of the famous *Hani ka Lani*, supposed to date from the 18th century, in praise of Kamehameha I,

here for the first time extended to the 809 lines of its full rendering. Each volume is supplied with an excellent index and all in all the edition is admirably adapted to the needs of students of Polynesian folk-lore and ethnology.

Judge Fornander believed in the kinship of Polynesian culture with that of India. He treated the Hawaiian genealogies and stories which he collected as of direct historical value without perhaps allowing for their possibly purely artistic interest. This their epical character rendered possible. It is a convention of Hawaiian story to begin a narrative with the names of the parents of hero or heroine and of his place of birth. Generally the name of the ruling chief appears in the story, and anecdotes explaining a local place-name are very often inserted. Whatever is fantastic or exceptional in the tales appears natural from the standpoint of native belief in the supernatural. The story itself proceeds in much the same epic vein as old Scandinavian saga, in some cases with equally bitter realism. It lacks the fairy-tale element and there are no animal fables. The constant passing of inanimate, animal, and human forms one into another is the natural result of the Polynesian animistic belief in the god-informing nature of the material universe. A certain number of the stories deal with adventures with spirits who occupy the islands and must be driven out before the present race takes possession—stories of cannibalism, of culture gifts and of practical joking which must not be regarded as significant of the actual settling of the group. Indeed, although a few tales extend the cosmographical fancy into the heavens, the large majority, even those which are common to other Polynesian groups, are definitely located within the Hawaiian group. A few tell of migration and of voyages to other lands. In such legends sorcery is common and women play a considerable part or even form the central figures.

Fornander asserts that the style of Hawaiian story-telling became fixed during that brilliant period of court life which arose some two or three hundred years ago when each island was dominated by a single ruling chief and the arts cultivated by the nobility attained their highest development under the competitive leadership of the Keawes on Hawaii, the Kakaalaneos of Maui, the Kukuihewas of Oahu, and the Kawelos of Kauai. In many of the stories, mention is made of one or another of these as ruling chief; other older tales Fornander thinks have been corrupted into conformity with the fixed standards of this period. At this time the art of riddling, referred to directly in several tales of competitive word-play, became crystallized

into those artificial forms which have left the whole question of Hawaiian poetic composition so hopelessly obscure. Eminently characteristic of this period, too, is the importance attached to the fortunes of the chief's counselor, as in the stories of Pakaa and his son, the counselor probably having played a large part in the preservation of such courtly repositories of wit and learning. As in all folk art, interesting turns of style occur—not only the same adventure ascribed to various heroes, but phrases carried word for word into identical situations. The chief constantly appears with "a large canoe, small canoe; large men, small men; a red canoe, red sails, red bailing cup, red cords, a red man"; and at his beauty "the woods, the house rejoiced, as also the ants, the roaches and creeping things."

Superficially the collection shows no marked likeness with others from Polynesia. Although the great Maori heroes Raka and Hema are known to the Hawaiian genealogists, their stories are not preserved here as part of the popular epic. There are few exploits with cannibals, and the Maui stories, so conspicuous a part of Maori folk-tale, though known in Hawaii do not appear in this collection. A few curious coincidences appear between Maori and Hawaiian story—White's tale of *Pare and Whitu* which is printed here as well as in Thrum's collection, under the name of *Hiku and Kawelo*, Grey's *Maiden of Roturua*, several versions of which, never printed in text, are current on Kauai. With Samoa, the only other Polynesian group for which a considerable body of folk-tale has been made accessible for comparison, there seems to be less direct relation. Hawaiian folk-tale is more realistic; there is more interest in character and in human situation, fewer ascents to the heavens and episodes under seas. On the other hand, Hawaiian poetry has not the simple story-telling quality of Samoan chants and balladry.

With romantic themes familiar to our own folk-lore, these Hawaiian legends are not without close parallels. In the famous legend of Aukelenuiakea, the hero is thrown into a well by his jealous brothers, emerges endowed with talismans of power, encounters traps set for him at the entrance to the house of a supernatural princess who becomes his wife, who instructs him in magic (teaching him to cut her up and then putting herself together again like the helpful lady in "Fair Brown and Trembling"), and after he has encountered and slain a giant bird, sends him to seek the water of life at the bottom of a well on the other side of the moon. In another tale, the coward wins all the honors of battle while the hero, pretending sluggishness,

performs in secret prodigies of valor and is recognized only by a chance wound and the trophies he has borne away. In the cycle of the master-thief, Iwa—who “stole while he was yet in his mother’s womb”—performs the task of detaching from the temple a certain two-headed axe which hangs in the middle of a cord the ends of which are held by two old women.

The prodigious nomenclature of Hawaiian tales, together with the extreme literalness of the translation, makes the stories far from easy reading. A single index for the three volumes would have been a help to students. But altogether, these three volumes contain an invaluable contribution to Hawaiian lore, and students of Polynesian culture must feel themselves deeply indebted to the trustees of the Bishop Museum for rendering it accessible to them. They may also hope that the generous activities of the Museum authorities will not stop here. The very remarkable “Song of Creation,” once printed in text by Kalakaua, is now impossible to obtain and its translation by Queen Liliuokalani very difficult of access. The song deserves a careful and critical re-examination before its obscurities reduce it to a mere curiosity of language. Many old legends have appeared in text in the pages of local newspapers, which have never been turned into English and whose texts are themselves in danger of being lost. The tale of Kalapana, the full text of the Pele legend, as it is still told in Hawaii, are perhaps escaping preservation because of their vulgarity, but other legends equally valuable and without this feature are likewise ignored. Besides these famous tales of the past, there are in every district a number of local legends current and known to the more intelligent old-timer. There are place-names to be preserved to which old anecdotes still cling. The music of songs recorded within the Hawaiian text is unknown to any collection. For the preservation of all these things, it is perhaps necessary that a second Fornander should arise, no less disinterested and enthusiastic in his labor of love, no less gifted for the task, and no less strong in his conviction of the value of preserving in its native purity and wit the lore of a vanished but not forgotten past.

MARTHA WARREN BECKWITH

MISCELLANEOUS

Primitive Time-reckoning: A study in the origins and first development of the art of counting time among the primitive and early culture peoples. (Skrifter Utgivna av Humanistiska Vetenskaps-samfundet in Lund I.) MARTIN P. NILSSON. Lund: C. W. K. Gleerup, 1920.

One of the most striking examples of modern adherence to tradition is the annual objection to interfering with "God's" time when the date arrives for turning the clock back an hour. The opposition to daylight saving is not confined to the rural population or to the uneducated. On the contrary, grumblings may be heard from the college-bred and from those devoting their lives to scientific research. But when being twitted with being slaves to custom they will tell you it is a matter of taste, and there the argument must cease for there is no more reasoning in the subject of personal tastes than in "instincts."

Be that as it may, Professor Nilsson of the University of Lund has collected comprehensive data regarding the time question as solved by primitive peoples. He has dealt chiefly with the time systems which preceded the earliest calendars and has reached the following conclusions:

1. The first time-indications are not numerical but concrete, being determined by dawn, darkness, sowing, harvest, etc.
2. These time divisions as the outgrowth of experience vary in length; they cross and overlap in many cases and in others leave gaps; in other words, they are discontinuous.
3. When primitive people adopt a continuous unit of time like our seven-day week, they do not regard it as a unit but as a part for the whole, according to their own *pars pro toto* method of counting.
4. Continuous time-reckoning arises from the various phases and positions of the moon.
5. The intercalation of months has arisen empirically since seasons and months fluctuate in reference to their position in the solar year, since the seasons are not limited in length and duration, and since they do not cover the months. Thus it happens that when the year has thirteen months one must be "forgotten," i. e., it must be dropped and its name given to the following month. From this occurrence there arise disputes as to which month it is; consequently the arrangement of the intercalation has been entrusted to priests, to

a body of officials, or even to a single person appointed for the purpose. An accurate intercalary cycle was not needed until the flourishing of theoretical astronomy and, accordingly, was introduced in Persia about 528 B. C.

For the regulation of months and seasons by the annual course of the sun, fixed land-marks or dwelling-places are required; even then only the two solstices are accessible to primitive observation and these are easily noticed in northern latitudes only; therefore the solstices and equinoxes play a comparatively unimportant part in the history of time-reckoning.

6. The regulation of the Greek calendar has throughout a sacred character. It was, in the first place, arranged in the form of sacred feast days which were followed by the official civil calendar. Furthermore, the Greek intercalation came from the east and originally from Babylonia. With it came other phases of eastern civilization, e. g., art and astronomical science. The demands of the latter for accuracy prepared the way for the emancipation of time-reckoning from the fetters of religious cult.

Professor Nilsson uses the comparative method in arriving at these conclusions. His defence is that the number of time-reckoning phenomena is accurately determined and limited, that these phenomena are the same throughout the world, and can be combined in a certain small number of ways. Fundamentally the two main groups are (a) phenomena of the heavens, and (b) phases of nature. He does not pretend to show what has happened in the case of one particular people, but by the elimination of impossibilities to indicate what *may* have happened. And since he has been universal in procuring his material, and since he has treated his fundamental groups with extreme care for details and variabilities his method seems unobjectionable.

The author has investigated and discussed the day, the seasons, the year, the stars, the month and series of months, calendar regulation with special reference to the intercalation and beginning of the year, solstices and equinoxes, artificial periods of time, and finally the calendar makers, sacred and profane. He devotes one chapter to the enumeration of popular months of European people. And here we see, if not the conservatism of the modern as to length of month, at least survivals of ancient notions in naming; e. g., even after the Julian calendar had been adopted in northern Europe, the old seasonal names were retained.

In his wealth of examples, care for detail, and in his extensive use of sources, as shown by a long and authentic bibliography, Professor Nilsson exhibits his devotion to accuracy.

GLADYS A. REICHARD

SOME NEW PUBLICATIONS

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Bolton, Reginald Pelham. *Indian Paths in the Great Metropolis.* (Indian Notes and Monographs.) New York: Museum of the American Indian, Heye Foundation, 1922. 280 pp., 11 maps, 28 pls., 1 fig.

Densmore, Frances. *Northern Ute Music.* (Bureau of American Ethnology Bulletin 75.) Washington, 1922. 213 pp., 16 pls., 21 figs.

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DISCUSSION AND CORRESPONDENCE

PREJUDICE OR LINGUISTIC SHORT-COMING?

THE second number of the twenty-third volume of the *American Anthropologist* contained a review of a little work of mine, *Essai sur l'Origine des Dénés de l'Amérique du Nord*, the animus of which has ever since been somewhat of a mystery to me. Despite its evident misrepresentation of my aim and conclusions, after flattering articles on that humble volume (one of which ran through four numbers of a periodical), as well as privately expressed encomiums on the same, I have so far felt loath to correct the inaccuracies of its author, Prof. R. B. Dixon, whose name has of late been prominently associated with what some call strenuous criticism, meaning perhaps thereby something stronger. I thought it more dignified to ignore his strictures on my book until some friends, who seem to understand French better than he, pressed me to set matters right, it being, they claim, a case not only of undue depreciation, but of manifest misrepresentation. Reluctantly, therefore, I must take up the cudgels and point out the most reprehensible features of Dixon's article.

These are, first, that he utterly misrepresents the aim and conclusions of my essay, and, second, that he does not seem to see, at least he does not once mention, that remarkable analogy which served as the real basis for my findings, and constitutes the *ratio essendi* of my little work. This is so true that I can not help asking myself whether my austere critic so much as read it, and, if he did, whether he understood it thoroughly. Though his review smacks of prejudice, I can not, of course, bring myself to imagine that he could have wilfully wronged me.

My pages forming an essay on the origin of the Dénés, nothing could surpass in importance the answer I give to the implied query of its title. What is that answer? What origin do I assign to my former Indians "after thirty-two years of serious study?"¹ According to Prof. Dixon, after having produced meaningless or misunderstood similarities, I "turn at last to the mirage of the Lost Ten Tribes and find in this the final solution of many of my troubles." Which comes to say, unless I fail to understand English, that I end by adopting the

¹ *Essai sur l'origine des Dénés de l'Amérique du Nord*, p. 6.

opinion of those who believed the Indians to be the descendants of the Lost Tribes of Israel.

Now not only do I not adopt it, but I have always combated it, and, in this little book of mine, I, on its very threshold, implicitly scorn it away! Translating my French for the benefit of Dr. Dixon, here is what I say in commencing my enumeration of the various current hypotheses regarding the origin of the Indians in general:

"There is, in the first place, the theory of their Hebraic origin, which captivated a large number of intellects, and according to which our Indians are nothing else than the Lost Tribes of Israel."²

So far so good. Any one will see that I hereby commit myself to no opinion on that subject, though a Frenchman familiar with the delicate shades of his language will have already perceived by my use of the word "captivated" that I do not lean towards that opinion. But, although this is not the place to show a preference for or against such a claim, any intelligent reader will clearly see on which side are my own leanings when I immediately add: "Though already an old one, the *tribe* of those who embraced that opinion is neither lost nor extinct." If Dr. Dixon cannot feel the gentle irony contained in these words, all I can say is that his knowledge of French is imperfect.

Nowhere, in my 230 pages, do I state, or even as much as remotely hint, that the Dénés are of even Semitic, let alone Jewish, origin, and I challenge my critic to show me one single passage in that work to bear him out in his contention. Nowhere will he find an excuse for his assertion that, "turning to the mirage of the Lost Ten Tribes, I find in this the final solution of many of my troubles."

After having minutely compared the Dénés with the aborigines of eastern Siberia, such as they were at the time of their first contact with the Russians—something I have been told had never been attempted before, and which I did after a close study of exceedingly rare old books of which I have a collection, though Dixon makes bold to say that the facts I have on the same are "well-known"—I conclude by saying that, according to the Déné traditions, "we may say that they originally inhabited a part of Asia devoid of mountains and with a temperate climate."³ Of the Jews, not a word.

Prof. Dixon goes on to affirm somewhat disingenuously that "I accept as history the Déné traditions of migration from a land abounding in snakes and monkeys." I wonder if he is really serious,

² Op. cit., p. 7.

³ Ibid., p. 91.

or whether he simply wants to enjoy a fling at what he no doubt takes for my credulity. In the first place, I do not accept the Déné traditions as history, though, in common with all competent and unbiased ethnographers, I grant them all the value aboriginal traditions (not merely legends) deserve, especially when they permeate several tribes of the same stock, and are furthermore corroborated by striking proofs derived from geography—such as those over which Dixon prudently passes in silence.

Then, as to the land of the snakes and monkeys, it is not I but Sir John Franklin who refers to it, quoting the Indians he met.⁴ Petitot found the same tradition among other related tribes. Of course, Dixon cannot see anything suggestive in the fact that aborigines who have never come in contact with any anthropoid apes in their frozen deserts should yet mention the same in the traditions they have derived from their ancestors, traditions which they gave out to the first white man they saw, barring thereby the possibility of being accused of borrowing from the whites or others the concept of such strange beings.

To revert to the question of the origin of my Dénés. Never once in the course of over 200 pages do I as much as mention the Jews to whom Dixon does not hesitate to affirm that I trace the origin of those aborigines. When I do come to speak of them, I do so in such a cautious and indefinite way that no bona fide inquirer could fail to notice it. I then hint at "some neighborhood or commerce at a time previous to their (the Dénés) passage into America, and *perhaps* even some blood mixture consequent on intermarriages of the ancestors of our Dénés with either Jewish or Judaizing populations."⁵

Compare this guarded, limited, and tentative suggestion with Dixon's unreserved and sweeping declaration, and characterize such tactics as you will.

I am so little lured away by the mirage of the Lost Ten Tribes, that I then go on to write: "I am aware that I am here nearing a slippery enough ground, which has already caused numbers of explorers to fall, that I am venturing upon moving sand which may become fatal to the searcher who is unwary enough to tread on it with closed eyes and without the accessories which are necessary to prevent him from sinking into it. We shall therefore keep well awake, promptly repress any fit of enthusiasm, and be careful to check all the data which history and sociology may offer us on this subject."

⁴ Cf. *op. cit.*, p. 73.

⁵ *Ibid.*, p. 204.

Unless I am greatly mistaken, these preliminaries scarcely betray the allurements of any kind of mirage. Nay, I am so far from giving, even partially, the Lost Tribes of Israel as the ancestors of my Indians that I write immediately after the foregoing: "After having reviewed peculiarities and adduced arguments which cannot but beget certitude, we are now going to tackle others which, though at first sight seemingly as convincing, can scarcely result in anything more than some degree of probability."⁶

Whereupon I give for what they are worth some sociological and ritual resemblances between the Israelites of old and the Dénés. Is this, I ask again, giving as my conclusions that my Indians are descended from the Lost Ten Tribes? This is so little the case that, in a note at the end of that same chapter, I expressly remark: "I have purposely omitted to mention in this chapter an argument quite in vogue among the partisans of the Hebraic origin of our Indians, a theory which, as it must now be understood, *has almost nothing in common with mine.*"⁷

Nor is this all. When, page 224 of my *Essai*, I come upon those ritual resemblances, especially such of them as pertain to feminine life, I expressly write that "lest we fall into the exclusivism *which led many authors astray*, or at least which made them go too far in their conclusions, it behooves us, even in this connection, to remark that several of the practices we are about to describe appear to have been older than the book of *Leviticus*, to which it is customary to refer them."

In other words, we are going to enumerate sociological similarities between the primitive Jews and our Dénés; but the reader should be careful not to jump to the conclusion that these stamp the Indians in question as being of Jewish origin, since they originally belonged to other peoples.

This, it seems to me, ought effectively to dispose of Dixon's contention. On the other hand, I suppose it would not be fair for me to presume that Dixon is one of those prejudiced scholars whom the mere mention of Holy Writ and its wonderful record suffices to set on edge?

My critic furthermore asserts that I "for the most part used my sources quite uncritically," and that I have not "distinguished be-

⁶ Op. cit., p. 212.

⁷ Ibid., p. 204.

tween similarities in culture which are significant and those which are not." Of course, since such is Dixon's belief, I must take it as the expression of truth. Yet I will confess that I would be more ready to bow to his superior judgment if others had not published the very contrary in reputable reviews. Is it possible that that gentleman, professor though he be, can not distinguish between the essential and the accessory, the *probatio probans* and the *probatio corroborans* familiar to every logician? Or is it that, in a book destined more or less for the general reader, not to superior intellects such as Dixon's, it should now be forbidden to adduce even those facts which may go to corroborate in one way or another the main argument of a thesis? One would really believe that, acute as he may be, our professor did not notice that my first fourteen chapters are but so many steps leading to Chapter XV, wherein lies my chief evidence, of which Dixon evidently failed to grasp the true significance. The gist of my argument is there; it is on the facts it contains that I really rely for my proof, and, useless to repeat it, that chapter has not the remotest allusion to the Jews.

There are among primitive peoples a number of myths of a more or less general character which are of no ethnographical value, possess scarcely any importance when it is a question of determining either ethnic identities or relationships, or again contact in the remote past. But I hold that when you find within two nations one whose details are so characteristic, so typical, and so remarkably alike as those of the legend related in my Chapter XV, the duplication of the same can not be regarded as fortuitous, and is, on the contrary, highly significant. On this point, I make a bold appeal to the good sense of every unprejudiced reader.

But if we are to believe Prof. Dixon, I fail in my book "to recognize that many of the items of northern Athabaskan culture which I discuss are really borrowed and not Athabaskan at all." In answer, ready as I am to credit my adversary with superior critical acumen—not to mention an unbounded assurance—I am old-fashioned enough to imagine that one who has, for forty years, made a special study of an aboriginal family, while he is fairly familiar with the races that surround it, should know as well what belongs to it and what does not as any chance reviewer who perhaps never saw any member of that family, who does not speak any of its dialects and who never wrote those "numerous valuable articles and monographs in

regard" to the same aborigines for which "all students of the American Indian must be grateful."⁸

Did Dr. Dixon ever read that essay of mine published at least thirty-two years ago,⁹ which is entitled "Is Carrier Sociology Indigenous or Exotic?" I showed therein that many native customs which had previously passed for being Déné were in reality borrowed from foreign tribes. If my reviewer will only peruse it, he will soon realize that I scarcely need to be reminded that the usages and observances prevailing among the modern Dénés are not all Déné. Many there are among those I compared with Asiatic equivalents in my little book which I well know to be un-Déné (and which I give as such), but are certainly American.

Wherefrom Prof. Dixon may also learn that I am not quite so new as he complacently believes to "a field and a kind of investigation" of which no office scientist can rightfully claim to have a monopoly.

A. G. MORICE

ATHABASKAN TONE

A part of the summer of 1922 was spent by the writer at Sarcee Reserve, Alberta, in studying the language of the Sarcee Indians. A series of texts was obtained as well as supplementary grammatical material. The most important single point that appeared was the fact that Sarcee has a well-developed system of pitch accent. Fundamentally this system has a striking resemblance to the Tlingit tonal system described by Dr. Boas, though secondary developments have complicated the Sarcee system considerably. The tonal resemblances between Tlingit and Athabaskan constitute an important further argument in the Nadene theory recently put forward. Hints on Athabaskan tone are to be found also in Father L. Legoff's study of Chipewyan (*Grammaire de la Langue Montagnaise*). Father Morice makes a few isolated references to tone in Carrier, where it is almost certainly a feature of importance judging from brief MS linguistic notes taken by C. M. Barbeau among Carrier Indians at Hagweligate. Some years ago P. E. Goddard noted tonal differences between otherwise identical second person singular and third person subjective forms in the Hupa verb; these observations, based on the study of

⁸ Prof. R. B. Dixon, in his review of my Essay.

⁹ In the Transactions, of the Royal Society of Canada, first series. Being momentarily away from my library, I cannot give the exact volume, much less the page

Rousselotgraphs, agree with the Sarcee results obtained. So fundamental is tone to Sarcee morphology that it is well nigh inconceivable that it should be entirely absent in any other Athabaskan dialect.

E. SAPIR

ANTHROPOLOGICAL NOTES

ANNUAL MEETING OF THE AMERICAN ANTHROPOLOGICAL ASSOCIATION

The annual meeting of the American Anthropological Association, will be held in the Massachusetts Institute of Technology, Cambridge, Mass., December 27, 28, and 29, in conjunction with Section H (Anthropology) of the American Association for the Advancement of Science, and the American Folk-Lore Society.

THE LOUBAT PRIZES

The next award of the Loubat Prizes will be made in 1923, and an announcement regarding them has just been issued by Columbia University. As set forth in the above announcement, these prizes are of the value respectively of \$1000 and \$400 and "are awarded at Commencement at the close of every quinquennial period, dating from July 1, 1898, for the best work printed and published in the English language on the History, Geography, Archaeology, Ethnology, Philology, or Numismatics of North America. The competition for such prizes is open to all persons, whether connected with Columbia University or not, and whether citizens of the United States or any other country.

"In accordance with the terms of the deed of gift, the successful competitors are bound to furnish, free of charge to the University, five copies of the works for which the prizes are awarded.

The jury of award for the current period is as follows:

"William Milligan Sloane, Seth Low Professor of History in Columbia University, Chairman.

"Alfred L. Kroeber, Professor of Anthropology and Curator of the Anthropological Museum in the University of California.

"St. George Leakin Sioussat, Professor of American History in the University of Pennsylvania.

"Communications in regard to the Loubat Prizes should be addressed and works submitted in competition should be sent to the Secretary of Columbia University, New York City."

DURING the past season Alanson Skinner, Curator of Anthropology of the Public Museum of the City of Milwaukee made two trips

to Oklahoma for the purpose of collecting specimens from the Sauk and Iowa Indians. In addition to several hundred pages of notes, Mr. Skinner obtained a good representative collection from each of the tribes in question, and was especially fortunate in collecting a large series of ceremonial articles as well. From the Iowa the entire existing series of gens peace pipe bundles was gathered, in addition to a number of sacred bundles of the Buffalo Doctors and Grizzly Bear Doctors Societies, articles which were supplemented by similar series from the related Oto tribe. From the Sauk no less than fourteen war-bundles of the Wolf, Deer, Turkey, and Bear-Potato gentes were acquired. These bundles are interesting in containing many fine antique articles, such as breechcloths, arm and shoulder bands, headdresses, plumes, and prisoner ties ornamented with porcupine quills. Several new types of war-bundles were collected, among them one from the Bear-Potato gens, the principal contents of which was a pair of otter skins stuffed with native tobacco. To one of the skins is attached eighteen human scalps, while eight are affixed to the other. Another unusual bundle was one of the Wolf gens, consisting of the skin of a duckhawk in a tight envelope of deerskin, which was carried into battle by the partisan, contrary to the usual custom. Much new data concerning the origin, use, and rituals of the bundles was collected. A very fine Kickapoo war bundle, containing a prisoner tie made like an Iroquois burden strap with false embroidery in dyed deer hair, was also obtained.

Mr. Skinner expects to return to Oklahoma during the winter to pursue his studies and continue collecting among the two tribes.

An expedition from the Museum of the American Indian, Heye Foundation, working in the Ozark region of Arkansas during the past summer, succeeded in locating some unusually dry rock-shelters, which yielded a large collection of prehistoric basketry, textiles, and wooden objects in addition to the articles of stone and bone usually found in such places. Among the more interesting specimens secured are two baby-carriers neatly woven of cane, and a hoe or adze, its shell blade still attached to its wooden handle with native cord and strips of bark.

Most of the basketry is of split cane, the twilled weaves suggesting those of the southeastern tribes, but wicker and coiled baskets were also found. The sacks and blanket fragments of fiber show, as a rule, simple twined weaves, but a number of pieces of robes ap-

peared, made by weaving together cords that had been previously wrapped with soft feathers or strips of fur.

The work, which was in charge of Mr. M. R. Harrington, assisted by Messrs. D. A. Cadzow and C. O. Turbyfill, will be continued during the winter.

DR. J. WALTER FEWKES, Chief of the Bureau of American Ethnology, spent three months during the past summer in the field at the Mesa Verde National Park, Colorado. He excavated three ruins: one near Far View House to which he gave the name of "Pipe Shrine House," on account of the dozen or more pipes which were found on the floor of the central kiva. He also opened and restored the "Far View Tower" situated a few hundred feet north of Far View House, where he found three kivas on the south side of a circular tower. To a third he gave the name "One Clán House," which consisted of a circular kiva and surrounding rooms used for various purposes such as cooking, grinding corn, storage, and sleeping. A good collection of aboriginal objects was obtained in the prosecution of this work.

MR. ARTHUR C. PARKER, State Archeologist of New York, spent part of the summer in excavating a remarkable prehistoric Indian Cemetery at Vine Valley on Canandaigua Lake, New York. The culture was either very high early Algonkian, or else of a type comparable with that of some of the Ohio Mounds. It yielded polished slate tubes, bird stones, two-holed gorgets, fossil ivory articles, and other unusual articles.

MESSRS. LEE R. WHITNEY and CHARLES E. BROWN, President and Secretary of the Wisconsin Archeological Society respectively, made two independent trips at different times to the east, where they visited the various museums and collections in New York State in particular. Mr. Brown was fortunate in being able to visit New York State Archeologist Parker in the field at Vine Valley.

DR. S. A. BARRETT, Director of the Public Museum of the City of Milwaukee, has recently secured an exceptionally fine carved Haida totem pole which he has had erected in front of the Museum Building. It is 42 feet high, and is regarded as one of the best examples of Haida carving extant.

PROFESSOR HUTTON WEBSTER'S *Primitive Secret Societies* has recently been translated into Italian by Dr. R. Pettazzoni of the

Royal University of Bologna. It appears in the series "Storia delle Religioni, edited by Dr. Pettazzoni. A Japanese translation of this book was published a few years ago.

ROBERT T. AITKEN has returned from about two years spent in Tahiti and various islands of the Society and Austral groups. His work is to supplement the investigations of the Bayard Dominick Expedition, which is making an intensive study of Polynesian origin and migration. Mr. Aitken collected material objects illustrative of the life of the present-day people, and a few that date back to the early inhabitants of these islands. He also brought back a few folk tales in fragmentary form, physical measurements of the inhabitants and photographs of the majority of the people of the island of Tubuai in the Austral group.—*Science*.

DR. F. VON LUSCHAN, Professor of Anthropology at the University of Berlin, retires this year, having reached the age limit.

STEPHENSON PERCY SMITH, known for his work on Polynesian ethnology, has died at New Plymouth, New Zealand, at the age of seventy-two years.

DR. HUGO OBERMAIER has been appointed to the new Professorship of Prehistoric Archaeology at the University of Madrid.

THE second year's work of the American School in France for Prehistoric Studies began the first week in July at the rock shelter of La Quina, Charente, under the Directorship of Dr. Charles Peabody. The retiring Director, Professor George Grant MacCurdy, has returned to Yale University after visiting Switzerland, Austria, Czechoslovakia, Germany, Belgium, and England.

DR. CARL E. GUTHE returned during May from a four months' field season in Guatemala where he continued the excavations begun last year at the ruins of Tayasal, near Flores in Peten. On the first of August he resigned his position as Research Associate in Middle American Archaeology, in the Carnegie Institution of Washington, to accept the position of Associate Director of Anthropology in the Museum at the University of Michigan. On the first of September he left for the Philippine Islands, to begin Anthropological investigations there for the University. Three years will be devoted to the work in the islands.

A SOCIETY for the preservation of ancient remains in the State of Yucatan, Mexico, has been formed at Mérida, under the name "Asociación Conservadora de los Monumentos Arquelógicos de Yucatán."

MR. JOHN P. HARRINGTON, Ethnologist of the Bureau of American Ethnology, returned to Washington, July 6, after a successful season in California.

W. C. McKERN is temporarily assisting the Bureau of American Ethnology in the capacity of Assistant Ethnologist.

DR. T. T. WATERMAN concluded his work for the Bureau of American Ethnology in September and sailed for Cuba to accept a position as instructor in Habana.

At the Hull Meeting of the British Association for the Advancement of Science, Sept. 6-13, the President of the Section of Anthropology delivered an address on "The Study of Man." Dr. C. S. Myers, F. R. S., spoke before the Psychology Section on the influence of the late Dr. W. H. R. Rivers, President Elect of the Section, on the development of psychology in Great Britain.

IN connection with the National Colonial Exposition of Marseilles an International Assembly of Geographers, Explorers, Ethnologists, and Naturalists, of which Prince Bonaparte was President, was held, during the week of September 22-28.

PROF. EDWARD ANTHONY SPITZKA, well-known for his work in physical anthropology, as well as in anatomy and neurology, died on September 4, at his home in Mount Vernon, N. Y.

EDWARD S. HANDY, ethnologist of the Bishop Museum of Hawaii, will leave Honolulu in December or January to take charge of an expedition to Tahiti and Moorea, for which the museum has completed arrangements. The work is planned to supplement the investigations by members of the Bayard Dominick Expedition, who have been at work in the Marquesas and the Austral Islands during the past two years.—*Science*.

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NEW SERIES

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EXPLORATION OF THE MOUND CITY GROUP, ROSS COUNTY, OHIO

By WILLIAM C. MILLS

INTRODUCTORY NOTE

PROBABLY no other American prehistoric earthwork has excited so great a degree of historic interest as the so-called Mound City Group of Ross County, Ohio. Certainly, from the prehistoric viewpoint, it stands unsurpassed.

Through the partial examination of the group, in 1846, by Squier and Davis, and the publication of the report in *Ancient Monuments of the Mississippi Valley*, archaeological circles throughout the world have been made acquainted with their remarkable finds and conclusions. So striking, indeed, were these results and so widespread the circulation of the report, published by the Smithsonian Institution, that *Ancient Monuments* became, and has remained to many persons, a classic contribution to knowledge of the great mound-building cultures of prehistoric American peoples. For many years the Mound City Group and its contents continued to be considered as the ne plus ultra of mound-builder achievement, and while subsequent explorers looked upon Squier and Davis's accomplishment as something to be striven for, there was in many quarters a feeling that the Mound City "finds" would never be equalled, much less surpassed. This sentiment was voiced by no less a personage than the late Professor Frederick W. Putnam, dean of American archaeologists, when, in a conversation regarding archaeological exploration in Ohio, he declared to the writer that, in his opinion, the Mound City finds would continue to stand as unique. A few years later, at the very time when this Society's survey was removing from the Tremper Mound, in Scioto County, a collection of specimens which not only duplicated the finest artifacts

taken from the Mound City Group, but actually excelled them both as to quality and numbers, work was brought to a halt momentarily by the arrival of a telegram. This telegram brought the sad news of Professor Putnam's death. That he did not live to learn of the Tremper find which, even in his great optimism, he was unable to foresee, will always remain a matter of regret to the writer. The possibilities of archaeological research in Ohio had been underestimated.

The rich finds of the Tremper Mound naturally were most gratifying, particularly as the Mound City specimens had been taken out of this country, their loss to be felt keenly by a later and more appreciative public. But the exploration of the Tremper Mound furnished something more than replacement of the loss of the finest examples of mound-builder art discovered up to that time. It furnished ideas and information which, added to the knowledge already accumulated through earlier recent exploration, could be brought intelligibly and logically to bear upon the deductions and conclusions of Squier and Davis with regard to the Mound City earthworks. The Tremper Mound, as judged by its exploration, and comparison with Squier and Davis's report, was analogous in all its important aspects with the great Ross County Group, and it was felt that a complete examination of the latter would furnish evidence justifying the same or a similar explanation as to its construction, purposes, and usage.

Squier and Davis, it must be remembered, worked as pioneers. There were available to them no data on which to base an interpretation of evidences appearing to them in the Ross County Group. It was but natural, perhaps, that some of these interpretations should be subjected to question after prolonged explorations had furnished firmer bases of fact. The more important of these conclusions were that the builders of the Mound City Group practised human sacrifice; that, from this practice, they should be in some way rather directly related to the dominant cultures in Mexico and Central America; that certain basin-like receptacles constructed upon the floors of the mounds were the "altars" on which human sacrifices were made; and various minor

impressions, such as their belief that the so-called stratified mounds were not used as places of burial.

Although Squier and Davis explicitly state in their report that their explorations comprised all of the twenty-four or more mounds of the Mound City Group; and although the work of constructing the great military encampment at Camp Sherman, where the group is located, had obliterated all trace of at least one-half of this original number of mounds, our survey, in the

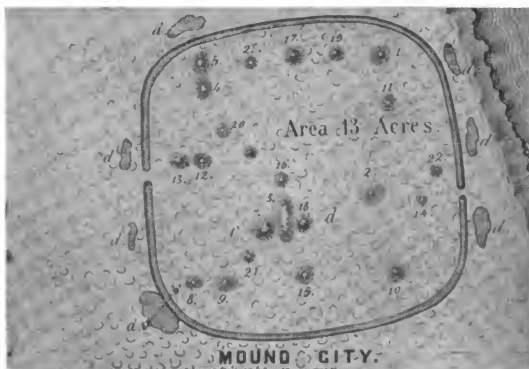


FIG. 27.—Mound City after Squier and Davis.

spring of 1920, undertook the final and complete examination of what remained, since we felt that even this remnant still represented one of the more important of Ohio's prehistoric earthworks, of interest not alone as a monument of our pre-Columbian predecessors, but as a structure of historic import as well.

THE MOUND CITY GROUP OF EARTHWORKS

SQUIER AND DAVIS'S MAP AND DESCRIPTION

The map of the Mound City Group, from the survey of Squier and Davis at the time of the explorations therein, is here reproduced (Fig. 27).

Their summary description of the group, from *Ancient Monuments of the Mississippi Valley* (Smithsonian Institution, 1848) is as follows:

Situated on the left bank of the Scioto River, four miles north of the town of Chillicothe. The enclosure, designated from the great number of mounds within its walls, "Mound City," is in many respects the most remarkable in the Scioto Valley. Through the generous kindness of Henry Shriver, Esq., upon whose estate it is situated, the mounds were all permitted to be investigated; and the work will, in consequence, be often referred to in the course of this volume, particularly when we come to speak of "mounds."

In outline it is nearly square, with rounded angles, and consists of a simple embankment, between three and four feet high, unaccompanied by a ditch. Its site is the beautiful level of the second terrace, and it is still covered with the primitive forest.

The first and most striking feature in connection with this work is the unusual number of mounds which it contains. There are no less than twenty-four within its walls. All of these, as above observed, have been excavated, and the principal ones found to contain *altars* and other remains, which put it beyond question that they were places of *sacrifice*, or of superstitious origin.

These mounds seem placed generally without design in respect to each other, although there is a manifest dependence between those composing the central group, and between those numbered 4 and 5 and 12 and 13. From the principal mound numbered 7 in the plan, after the fall of the leaves, a full view of every part of the work and of its enclosed mounds is commanded. This mound is seventeen feet high with a broad base nearly one hundred feet in diameter. The long mound, No. 3, is one hundred and forty feet long by eighty wide at the base, and ten feet in average height. Broad and deep pits, from which the earth for the construction of the mounds was taken, surround the work.

RECENT ASPECTS OF THE GROUP

At the time of the final exploration of Mound City, described in this report, the entire site was occupied by the United States army cantonment, Camp Sherman. Fig. 28 gives a view of it before this change had taken place. Incident to the construction of this great camp, the grading of streets and drilling-grounds and the erection of barracks and other buildings resulted in unavoidable disturbance of the group. In a number of instances mounds were completely removed, the earth composing them being used for grading and filling and any specimens they may have contained thus lost, or scattered among workmen. Others of the mounds fared less disastrously, being disturbed in part only,

while one at least—the great central mound of the group—suffered no damage whatever.

Of the total of twenty-four mounds recorded by Squier and Davis, in the above description, only twelve—one-half the original number—could be located or identified by the present survey. Several of the smaller ones, it is known, had completely disappeared under many years of cultivation of the land, while the remainder had been obliterated in the construction of the cantonment. What these mounds may have contained in the

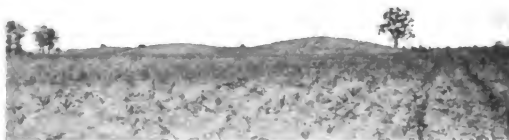


FIG. 28.—View of Mound City Group before it was taken over by the U. S. Government.

way of material evidence of their builders will never be known, and the only record of their existence is that of Squier and Davis. Mounds of which no trace remained are those numbered on their map as follows: 1, 4, 5, 6, 10, 11, 14, 16, 19, 20, 21, and 22.

The condition of the mounds remaining for final exploration was as follows: Mound No. 2, practically one-half entirely obliterated, the remaining portion being graded off to within 6 inches of its base; No. 3, the elongate mound of the central unit, disturbed by extensive ramifications of the camp plumbing system; Mound No. 7, intact, its removal having been forestalled by special intervention of the camp commander, at the solicitation of the Museum authorities; Mound No. 8, one-third graded off, to with-

in a few inches of the base; Mounds Nos. 9 and 12, much disturbed by trenching for plumbing system; Mound No. 13, a part of one side graded off, disturbing the most important burial thereof; Mounds 15 and 17, very small structures, more or less disturbed by grading; Mound No. 18, about one-half graded down, but a considerable depth of soil left above the base; Mound No. 21, very low, slightly disturbed; and Mound No. 23, fully two-thirds removed, with no trace of floor remaining.

The mounds of the group which remained available for exploration were examined, not according to the numbers given them by Squier and Davis, but in the order suggested by convenience and conditions existing in the camp. Naturally, those mounds which have been partly demolished, particularly those having but a few inches of earth above their floors and thus more likely to be disturbed by curious persons, were examined without delay. Several others, which in part or entirely lay beneath barrack buildings were left until, late in the autumn of 1921, the structures interfering with their examination were razed. It is interesting to note that in several mounds, notably Nos. 8 and 13, where portions of the bases had been almost or quite exposed by grading, numerous specimens lay exposed to view, and although many persons constantly passed these sites, the objects escaped notice.

EXAMINATION OF MOUND NO. 8

The incentive for beginning the present exploration of the Mound City Group with Mound No. 8 was two-fold. In the first place, as noted above, a portion of the mound had been removed to within a few inches of the base, leaving at least one burial partly exposed, and various artifacts within reach of the curious. Secondly, it was from this mound that Squier and Davis secured their noteworthy find of effigy pipes, upwards of 200 in number, in connection with which they arrived at certain conclusions at seeming variance with later and more complete evidence in the same direction.

The report of Squier and Davis on Mound No. 8 follows:

Fig. 37 is a section of mound No. 8 in "Mound City." In the number and value of its relics, this mound far exceeds any hitherto explored. It is small in size, and in its structure exhibits nothing remarkable. It had but

one sand stratum, the edges of which rested on the outer slopes of the altar, as shown in the section. Between this stratum and the deposit in the basin occurred a layer a few inches thick, of burned loam. The altar itself Fig. 38 was somewhat singular, though quite regular in shape. In length it was six feet two inches, in width four feet. At the point indicated in the section was a depression of perhaps six inches below the general level of the basin.

The deposit (a) in this altar was large. Intermixed with much ashes, were found not far from *two hundred* pipes, carved in stone, many pearl and shell beads, numerous discs, tubes, etc. of copper, and a number of other ornaments of copper, covered with silver, etc., etc. The pipes were much broken up,—some of them calcined by the heat, which had been sufficiently strong to melt copper, masses of which were found fused together in the centre of the basin. A large number have nevertheless been restored, at the expense of much labor and no small amount of patience. They are mostly composed of a red porphyritic stone, somewhat resembling the pipe stone of the *Coteau des Prairies*, excepting that it is of great hardness and interspersed with small variously colored granules. The fragments of this material which had been most exposed to the heat were changed to a brilliant black color, resembling Egyptian marble. Nearly all the articles carved in limestone, of which there had been a number, were calcined.

The bowls of most of the pipes are carved in miniature figures of animals, birds, reptiles, etc. All of them are executed with strict fidelity to nature, and with exquisite skill. Not only are the features of the various objects represented faithfully, but their peculiarities and habits are in some degree exhibited. The otter is shown in a characteristic attitude, holding a fish in his mouth; the heron also holds a fish; and the hawk grasps a small bird in its talons, which it tears with its beak. The panther, the bear, the wolf, the beaver, the otter, the squirrel, the raccoon, the hawk, the heron, crow, swallow, buzzard, *paroquet*, *loucan*, and other indigenous and southern birds,—the turtle, the frog, toad, rattlesnake, etc., are recognized at first glance. But the most interesting and valuable in the list, are a number of sculptured human heads, no doubt faithfully representing the predominant physical features of the ancient people by whom they were made. We have this assurance in the minute accuracy of the other sculptures of the same date.

The great importance of Mound No. 8 will be evident to all who read the above report, as will also the intense interest with which our later survey proceeded once more to uncover its mystic interior. The sentiment of members of the survey was that of treading upon hallowed ground; for here was a spot not only of a widely known prehistoric importance, but, as a result of the activities of two noted pioneer explorers, of marked historic importance as well. It was, indeed, with feelings befitting the occasion that the present survey presumed to lay bare the stage where, more than three-quarters of a century ago, Squier and Davis's explorations revealed to the archaeological world what

has continued perhaps to be the most widely known tumulus of the great mound-building cultures of the Ohio Valley.

While certain details of Squier and Davis's conclusions regarding Mound No. 8, its purposes and usages, seemed somewhat at variance with the cumulative evidence for the culture group as a whole, there was no predisposition to doubt the correctness of their observations, or rather the honesty of their deductions. At the time of their examination of the group there was available almost no data on which they might base conclusions. It was felt, furthermore, that since their explorations of the several mounds of the Mound City Group were but partial, as a rule simply covering the immediate centers of the mounds, that additional information was to be had through exhaustive examination. This information naturally would supplement, and might either confirm or modify, their original findings. Furthermore, it was hoped that the great central basin and its immediate surroundings would be found intact, and that, less its content of artifacts, of course, the present survey might see and examine it just as did its original explorers.

BURIALS IN MOUND NO. 8

Burial number 1, of this mound, lay to the northwest of its center, in that part of the tumulus which had been graded off incidental to camp construction. The grading process had left but an inch or two of earth covering the burial, and subsequent rains had exposed its contents plainly to view. The grave, a slight depression upon the floor, contained the cremated bones of one individual, with which were sixteen copper artifacts, consisting of breastplates, ear-ornaments, and pendants. These specimens were hammered and doubled together with the idea of destroying their intrinsic value—a proceeding customary where objects were placed in open graves, the idea being to preclude the possibility of their being stolen by derelict members of the tribe for personal use. This "killing" ceremony seems to have been widespread, and aside from the practical purpose served, may have carried with it something of the idea contained in the cremation ritual—the release of the spiritual essence of the object. In the in-

stance of incombustible artifacts, the breaking or mutilating of the object may have served the same purpose as did cremation with those which were combustible. That this procedure was anything more than a common-sense precaution, however, is not indicated definitely, for in the more pretentious burials of the mounds of this group, where the cremated remains immediately were covered by a primary protecting mound, artifacts as a rule were deposited entire. The only definite inference to be drawn is that broken and mutilated artifacts placed with the dead served equally well the purpose of perfect specimens.

Burial number 2 lay to the southwest of the center, occupying a basin-like depression in the floor, one foot deep. With the cremated remains were found three imitation eagle claws, made of copper; a long slender awl of copper; several large shell disks, perforated; many small shell disks; beads of shell and pearl; about one hundred perforated canine teeth of the elk; several imitation elk teeth; perforated bear canines; and imitation canines of the bear and the mountain lion.

Grave number 3 was similar in construction to number 2. It contained the cremated remains of one individual, with which were placed several flake knives and the flint core from which they were chipped; two slate gorgets, one perforated; fragments of pottery-ware; a number of perforated elk canines; five copper beads; and a necklace of clawbones of the bear and the gray wolf.

Burials 5, 7, and 8 all lay toward the south side of the mound, were deposited upon the floor without special preparation, and contained no artifacts.

Burial number 6 was placed directly north of the center of the mound, in a small basin-like receptacle on the floor. With the cremated remains was a copper plate, 6 inches long and $3\frac{1}{2}$ inches wide. This plate was extremely thin and fragile, and was removed in fragments.

Attention is directed to the photograph of the central basin from which Squier and Davis report taking their remarkable find of effigy pipes and other artifacts (Fig. 29).

The basin was found to be of the usual rectangular pattern in which the angles or the corners at its east end instead of being lightly defined were very sharply outlined.

In two respects the report of Squier and Davis regarding the deposit in this mound is misleading. The reader gets the impression, first, that the entire deposit of pipes, copper and other objects and ashes, representing presumably a sacrifice, was found within the basin proper, or, as they term it, the altar; second, that this great deposit had been burned in place, where found, the heat having been sufficiently strong to melt copper, "masses of which were found fused together in the center of the basin."



FIG. 29.—Crematory Mound No. 8.

As to the first of these suggestions, it will be noted by reference to the photograph of the basin, that the present survey found, at the southwest corner of the "altar," and entirely outside of it, a distinct receptacle or depository, not mentioned by Squier and Davis. This depository was in the form of an upright mold, rounded horizontally, and extending vertically from the floor of the mound to a height of 20 inches. The diameter of this mold at the bottom was 18 inches, with a gradual lessening toward its top. In a word, this mold was exactly that which would result from a filled bag being set upright on the floor and covered over

with earth, the bag and contents later being removed and the arched earth retaining its form and imprint.

It will be noted that Squier and Davis's excavation intersected this mold, disclosing its contents and permitting their removal, but left intact, in the body of the mold, the greater part of the opening. However, sufficient of the original contents remained to show their character. More than fifty fragments of pipes, many beads of pearl and shell, and a number of crystals of galena were taken from the bottom and around the edges of this mold, none of which showed contact with fire. However, associated with these objects were several fragments of a mineral resembling copper which unmistakably had been fused. Tests, however, showed this mineral to be a copper arsenide, probably whitneyite,¹ a product of the Michigan copper region. The same mineral, in large pieces, was found in Mound No. 13, where it was associated with galena.

In view of the fact that the rectangular basins, termed by Squier and Davis "altars" but now generally recognized as crematories, were seldom used as depositories of burials or artifacts and since such deposits were often made alongside and quite near to the basins, as in the Tremper Mound and in Mounds 13 and 7 of the Mound City Group, the evidence for Mound No. 8 is that the great find of pipes and doubtless many others of the accompanying specimens were taken from this supplemental depository and not from the central basin.

THE SO-CALLED ALTAR

Consideration of the basin itself strengthens this idea, and brings us to the second supposition of Squier and Davis, namely, that an extensive cremation had been effected on the "altar," the heat from which was so intense as to fuse the accompanying artifacts of copper. In the "altar," or crematory, as in the case of the supplementary depository, it was fortunate that no mutilation had resulted from former examination. As with other mounds of the group, the excavation had been immediately filled,

¹ Samples of the fused metal from the deposit were submitted to Professor William J. McGaughey of the Department of Mineralogy, Ohio State University, for identification. They were found to be whitneyite or a closely allied copper arsenide mineral.

in accordance with the requirements of the owner of the land, thus enabling our survey to view in a very satisfactory manner those portions of the floor uncovered by the early explorers.

The crematory basin was found to be devoid of contents, with the exception of a few charred human bones and a fragment of a copper object, closely attached to the floor of the basin through corrosion, the original mass of ashes and artifacts having been removed, of course, upon first examination. However, a glance at the basin, once more exposed to view, was sufficient to show that the supposedly intense sacrificial or crematorial fires of Squier and Davis never had occurred therein. As so often noted in the crematory basins of other mounds of the group, this one had undergone extensive repairs. Continued use of these basins as crematories, with alternate heat and moisture, resulted in all instances in damage in the way of checking and cracking. In this particular basin this cracking had been very pronounced, the separation being as much as one inch in width. These cracks, as well as portions of the floor which had been altogether broken away, were neatly repaired by filling with puddled clay, bluish-drab in color. The fresh clay used in these repairs was entirely unburned, and showed no contact whatever with fire. In view of this fact, it becomes clear that cremation or burning of the deposit found in this basin had occurred elsewhere, possibly in the adjoining mound, No. 9, which appears to have been supplemental to No. 8 in purpose.

ULTIMATE CONCLUSIONS

The evidence, then, as to Mound No. 8 and its central deposit, as interpreted by this survey, is as follows: After cremation elsewhere, probably in the adjacent mound, No. 9, the human remains were brought to Mound No. 8, and, together with their accompanying artifacts of copper and other objects, were deposited within the basin formerly serving as a crematory. In close proximity to this basin and its contents, were then deposited the pipes, beads, and so forth, in their bag-like container, while over this offering and the basin alike was heaped the covering and protecting mound of earth. The fact that the bag container was

not destroyed in the burning of the structure enclosing the site of the mound, but retained its form and position when the earth was



FIG. 30.—Restored vessel from Mound No. 2.



FIG. 31.—Restored vessel from Mound No. 13.

heaped over it, indicates one of two things: either the structure was burned prior to the placing of the deposit, or the fire incident to the burning did not reach and consume it.

The finding of the copper arsenide, fused together by heat, mingled with the unburned fragments of pipes, beads, and so



FIG. 32.—Large mica depository, Mound No. 13.



FIG. 33.—Effigy crow pipe from the mica depository, Mound No. 13.

forth in the supplemental depository, shows unmistakably that the fusing and burning had been accomplished prior to the depositing of the specimens where found. The copper arsenide

mineral, covered with the carbonate of copper, through proximity and oxidation, might easily be mistaken for copper; hence it is apparent that the fused copper reported by Squier and Davis was in reality the copper arsenide or whitneyite.



FIG. 34.—Effigy crow pipe from the mica depository, Mound No. 13.

The fact that a degree of heat in excess of 2300 Fahrenheit is required to melt copper makes it improbable that the open fire of the cremation ceremony would result in fusing that metal, as



FIG. 35.—Effigy frog pipe from the mica depository, Mound No. 13.

the theory of Squier and Davis would lead us to suppose, while the copper arsenide, with a melting point of approximately one-fourth that of copper, would readily be affected by the degree of heat generated in an ordinary open fire.

Mounds Nos. 2, 13, 23, and 18 of the group revealed many artifacts; photographs of a few of the many unique copper, stone,



FIG. 36.—Effigy frog pipe found in depository connected with burials Nos. 2 and 3, Mound No. 13.



FIG. 37.—Effigy eagle heads of copper, Burial 3, Mound No. 13.

and ceramic objects are shown herewith (Figs. 30–40). Mound No. 7, the only undisturbed mound of the group, was perhaps the most interesting.

MOUND NUMBER 7

By right of size, as well as location, Mound No. 7 may well be considered the great central tumulus of the Mound City Group of earthworks. Certainly, now that exploration has disclosed the secrets of its rich interior, such place will not be denied it; for



FIG. 38.—Copper effigy bear headdress, Burial 3, Mound No. 13.

while others of the group have shown themselves to be of very great interest, considered alone, it must be conceded that the nucleus of the group as a whole, and the most important of the units composing it, is to be found in Mound No. 7.

Plans for the construction of the cantonment of Camp Sherman called originally for the demolition of Mound No. 7 and the



FIG. 39.—Copper effigy deer horns used for headdress, Burial 4, Mound No. 13.

use of its component earth for filling in the adjacent large pits, from which the group was originally constructed. However, at the solicitation of representatives of the Museum, these plans were modified so that the structure might be preserved until it could be scientifically examined. As a result, barrack buildings

and mess halls were erected on the north, west, and east sides, but the ground itself was left undisturbed. To the south of the structure lay an open parade ground, affording a desirable entrance for exploration and abundant space for disposing of the great amount of earth to be removed; and it was there that the examination was begun.

Before proceeding with the account of the final exploration of Mound No. 7, it may be well to view the structure as it appeared to Squier and Davis almost three-quarters of a century ago. They have this to say:



FIG. 40.—Obsidian spear, 9 in. in axes, weighing respectively two and two and one-fourth pounds. At the depth of seven feet occurred the first sand stratum, below which, at intervals of little more than a foot, were three more,—four in all. At the depth of nineteen feet was found a smooth thin layer of sand an inch in thickness. This sand had a marked ferruginous appearance, and seemed to be cemented together, breaking up into large fragments a foot or two square. At one side of the shaft, and resting on the sand, was noticed a layer of silvery mica, as shown in the plan of the excavation, Fig. 42. It was formed of round sheets, ten inches or a foot in diameter, overlapping each other like the scales of a fish. Lateral excavations were made to determine its extent, with the result indicated in the plan. The portion uncovered exhibited something over one-half of a large and regular crescent, the outer edge of which rested on an elevation or ridge of sand six inches in height, as shown in the supplementary section *o*. The entire length of the crescent from horn to horn could not have been less than twenty feet, and its greatest width five. The clay floor of this mound was but a few inches in thickness; a small shaft, *c*, was sunk three feet below it, but it disclosed only a mass of coarse ferruginous sand. The earth composing the mound was incredibly compact, rendering excavation exceedingly slow and

Fig. 41 is a section of mound No. 7 in "Mound City." This mound is much the largest within the enclosure, measuring seventeen and a half feet in height by ninety feet base. From its top a full view of the entire group is commanded. A shaft nine feet square was sunk from the apex. The outer layer of gravel, which in this case was twenty inches thick, was found to be broken up, and at the depth of three feet (at a point indicated by *a* in the section) were found two copper

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laborious. Two active men were employed more than a week in making the excavation here indicated. It is not absolutely certain that the mound was raised over the simple deposit above mentioned, and it may yet be subjected to a more rigid investigation.

Although this mound is classed as a mound of sacrifice, it presents some features peculiar to itself. Were we to yield to the temptation to speculation which the presence of the mica crescent holds out, we might conclude that the mound-builders worshipped the moon, and that this mound was dedicated, with unknown rites and ceremonies, to that luminary. It may be remarked that some of the mica sheets were of that peculiar variety known as "hieroglyphic" or "graphic mica."

RECENT ASPECT OF THE MOUND

In the time intervening between the above survey and the present, striking changes in the appearance of the Mound City Group have taken place. With respect to Mound No. 7, however, these changes are mostly superficial, since the great tumulus, in all essential respects, remained as it was known to Squier and Davis. Externally, the change was marked; for the forest which at that time covered the entire group had disappeared to be followed by many years of cultivation of the land, while this, in turn, had given way to the erection of a great cantonment for the training of American soldiers for the World War. In size and shape, Mound No. 7 was only slightly modified. Squier and Davis's measurements show it to have been, as surveyed by them, 90 feet in diameter and $17\frac{1}{2}$ feet high. However, since their shaft was sunk to a depth of 19 feet before reaching the floor, it is evident that this figure more nearly represents the true height; in fact, after years of cultivation, in which the thick gravel layer was continuously plowed from the top toward the base, our survey found the height of the structure to be 12 feet, while its diameter, as shown by the post-molds encircling its circumference, was approximately 100 feet.

Their finding of a portion of what they conceived as being a great mica crescent needs no preliminary comment, since its import will be made evident in subsequent pages of this report. The continuing of their shaft to a depth of three feet below the floor was a natural precaution; but little did they dream that at a depth of almost another three feet lay the floor of an important and extensive sub-structure, the uncovering of which awaited the

present survey. Their surmise that the mound might justify a more thorough examination was fully borne out by the results herein set forth.

Examination of Mound No. 7, begun at the north side and carried forward in the usual way, had reached the half-way point to completion, when unexpected developments occurred. In keeping with its policy of thorough investigation, the survey had constantly sunk test holes through the well-defined floor of the mound, in order that no underlying activities of its builders might be overlooked. One of these test shafts, effected at a point a few feet south of the geographic center of the mound, disclosed, at a depth of $5\frac{1}{2}$ feet, a striking, well-defined floor, with evidences of burning, as shown by the terra cotta discoloration of the surface and charred organic matter strewn thereon. Enlargement of this test excavation disclosed the rim of a crematory basin and confirmed the surmise that the activities of the builders of Mound No. 7 had not been confined to the normal level on which the structure was built.

In a mound of such proportions as No. 7, disposal of the component earth under normal conditions is always a problem, and with this new development it became decidedly more complex. The solution of the problem of caring for upwards of six feet additional earth was found in utilizing the limited space available to the east and west of the mound, thus supplementing the principal working entry at the south. This permitted of disposing of the worked-over earth in three directions, and of leaving the central portion of the area free for examination.

THE BASEMENT

Since the "basement" or substructure antedated the mound proper in construction and usage, it seems proper to accord it priority in this report. Its average depth below the floor of the mound proper was $5\frac{1}{2}$ feet, although in places this depth was close upon 6 feet. The excavation corresponding to the basement was oval in form, with its longest axis extending northeast and southwest. Its length was approximately 40 feet and its width 30 feet. About 20 inches of the upper portion of the fill,

including the floor proper, was of clayey loam, the remainder of the $5\frac{1}{2}$ feet being gravel. The floor of the basement was carefully made of puddled clay, four inches in thickness at the center, and gradually sloped toward the outer perimeter, following which was a continuous trough-like depression which furnished drainage, by carrying surface water from the floor to holes leading into the gravel below.

Entrance to the basement was by means of an easy slope or grade of earth located at the northeast end. On each side of this entry, where it joined the basement proper, had been set posts, about 6 inches in diameter, the distance between which was 5 feet 8 inches. From these entry posts, extending in either direction around the wall of the basement, were other posts. These were continued, at regular intervals, to about the center on each side, and apparently indicated the presence over the one-half of the basement which they occupied of some sort of roof or covering. An interesting feature of the construction of this basement was the fact that, to prevent the gravelly soil around its circumference from caving in upon the floor, the puddled clay stratum plastered upon the floor itself had been carried upward on to the walls, the whole ingenious proceeding suggesting the use of cement in the modern basement. It was interesting to find, however, that in places this wall of clay had failed to withhold the mass of gravel behind it and that both had slipped downward and forward on to the floor.

The only object of artificial construction found in this entire basement was a crematory basin (Fig. 41), the edge of which had been disclosed by the test-hole which brought to light its existence. This basin lay toward the southwest end of the basement, and measured 6 feet 3 inches by 4 feet 4 inches. This crematory, which had been used for a considerable period of time, as indicated by its burned condition and frequent repairs, was devoid of contents with the exception of a few calcined bones and ashes remaining from cremation ceremonies.

It is evident that this basement, a sacred place, was used for a long period, but that its purpose was mainly that of cremation. The cremated remains were apparently then removed to adjacent

sacred places for deposit and burial. In the end, the site was abandoned, the excavation filled to a level with the corresponding natural surface, and upon this restored surface Mound No. 7 was constructed.



FIG. 41.—The large crematory, Mound No. 7.

THE MOUND PROPER

Within a very short time after beginning the examination of Mound No. 7, the characteristic post-molds, marking the outer circumference of the wall of the pre-structure, were disclosed. Proceeding from these molds, at the southern margin of the mound, what was at first supposed to be the floor of the structure was discovered. This apparent floor, reaching to within 18 or 20 inches of the marginal post-molds, proved to be a carefully constructed covering of finely puddled clay, one-half to one inch in thickness, and in turn covered with a stratum of finely sifted sand, one inch to two inches in thickness. Instead, however, of marking the floor level, it was found to overlie the entire area of the mound, having been put in place when the tumulus had been built to a

height of seven feet at the center. It thus formed a continuous conical cap, completely sealing the mound below, together with its contents. A second covering, this time of sand alone, was found to overlie the mound at an earlier stage of its construction. This stratum lay one foot below the first-mentioned, and had been put in place when the mound had reached a height at the center of approximately six feet.

The true floor of the mound was easily discovered, and proved to be very marked in character. It had been constructed of puddled clay, with a light covering of fine sand. Apparently this sand covering had been renewed from time to time as it became trampled into the clay beneath. A peculiar cement-like layer had resulted which, in our examination, was removed in pieces, often one foot or more across, and resembling slabs of sandstone. As removal of the mound was carried to completion, it was found that this peculiar characteristic was constant throughout the entire extent of the floor. This floor had been so carefully constructed that from its surface the existence of the basement beneath it would never have been suspected. A section of the basement wall along its north side plastered with the puddled clay which, in one spot, has slipped downward on to the floor will be noted. The large post-hole at the right of the photograph is one of those placed at the side of the graded entry into the basement. It and others of the series extended downward through the main floor into the sub-base floor showing that, when the basement was filled in, the posts which they represent had remained in place and undisturbed.

Our survey found no burials or other deposits on the floor of the southwest section of the mound. This area doubtless served as a sort of assembly room from which were viewed the cremation and burial ceremonies held toward the interior and the north and east of the structure.

BURIALS OF THE MOUND

Of the thirteen burials belonging to the builders of Mound No. 7 all were cremated. Ten of these were placed upon the floor and three—those numbered 1, 2, and 11—were found within the body of the mound.

Burial number 1 occurred toward the southwestern side of the structure, about four feet above its base. With the cremated remains was an unusually fine double-bitted copper axe.

Burial number 2 was similarly located as to the above, at a distance of three feet above the floor. Two interesting copper pendants, spoon-shaped, and a number of bone and shell beads, accompanied the cremation, which had been placed in a pocket-like receptacle in the earth.

Burial number 11, the third found above the base-line, lay well to the northeast of the mound, about three feet above the floor. The cremated remains were deposited on what, at that stage, was the surface of the mound, and covered with earth. With the burial were two flint knives and a necklace of barrel-shaped bone beads. The natural supposition with regard to burials placed above the floor is that they represented individuals who died during the erection of the mound.

Of the ten burials found upon the floor of this mound, all were placed in more or less carefully prepared graves. The smaller and less important of these were covered rather indifferently with a deposit of clay and loam, but over the more pretentious of the burials had been erected primary mounds of earth with the characteristic coverings of fine sand.

Burial number 3 was the first to be encountered of those placed upon the floor. The grave was constructed of logs, about 8 inches in diameter, so placed as to form a rectangular enclosure, 6 feet 6 inches long and 5 feet wide. The enclosure was then filled with earth to a depth of 5 inches, and upon the resulting platform were deposited the cremated remains. With these were found a large obsidian spear, 8 inches in length (Fig. 42); a button-shaped ornament of copper, plano-convex in form, and one inch in diameter; and a necklace of small pearl and shell beads.

Burial number 4, located about 10 feet east of number 3, occupied a low platform 18 inches in diameter. With the small amount of material from incinerated human bones were placed three curved copper objects in the form of fishhooks; the remnants of two large spearpoints—one of hyaline quartz and one of obsidian—which had been broken into fragments; several frag-

mentary ornaments of very thin copper; and an unusual necklace, composed of large pearl beads and beads of wood, covered with silver.

Burials 5, 6, and 7 were closely grouped, and occupied a position directly north of number 3. Number 5 presented an unusual feature, in that it occupied a receptacle differing materially from the customary graves of the group. This receptacle consisted of a short, stump-like section of a tree, into the top of which had been excavated a bowl-like cavity to contain the cremated remains. The organic matter of the container had long since been replaced by a deposit of bog-iron, a condition not infrequently found in the mounds of this group, particularly in the post-molds, where the wood of the post has been replaced by the metallic deposit. In this burial, cremation had been carried to a point where most of the bones were consumed, the deposit thus being unusually small in quantity. With the remains were numerous remnants of perishable objects, including cut jaws and teeth, beads, and so forth, practically destroyed by cremation. A large bone awl, however, and a number of beads were unburned.

Burials 6 and 7 occupied slightly raised platforms, and with each was placed a necklace of shell beads.

Burial number 8, lying southeast from the center of the mound, contained an unusually large amount of cremated remains. With these were found a necklace of bone beads.

Examination of Mound No. 7 had reached a stage, at this point, of utmost interest and importance. Its exploration was carried forward by the removal of five-foot cuts, extending approximately east and west, and reaching from top to floor. The last of these to be completely removed, up to this time, had



FIG. 42.—Large spear point found with Burial 3, Mound No. 7. Length 8 in.

revealed burials 3, 4, and 8, and, in addition, just north of burial number 4, the margin of a primary sand-covered mound, which promised to develop into something of unusual interest. While this cut was being completed on its eastern end, workmen began the removal of the next succeeding cut at its western end. Burials 5, 6, and 7, already described, were brought to light before the westernmost one-third of this cut was completed. Since this cut would carry the work of examination almost to the geographical center of the mound, it was carried forward with careful anticipation of what it might reveal. It was felt that the shaft sunk by Squier and Davis, disclosing the extensive deposit of mica which they were able to examine only in very small part, was near at hand; and in addition, as before mentioned, the cut covered a primary mound of decided promise. Both surmises proved to be correct, for at a point corresponding very closely to the center of the mound was found the southern edge of the historic shaft, while to the eastward and adjoining it lay a most pretentious and important grave beneath the covering of this primary sand-covered mound.

THE SQUIER AND DAVIS SHAFT

The shaft of Squier and Davis, after being cleared out by our survey, was carefully examined. Its dimensions were found to be: depth, 11 feet 2 inches; width at top, 12 feet; width five feet below top, 5 feet 10 inches; width at bottom, 7 feet 11 inches. Although almost three-quarters of a century has elapsed since the digging of this shaft of the pioneer explorers, the marks of their mattocks and picks on its walls were almost as plain as if newly made. The earth which had been thrown back into the shaft from above was much looser than that of the undisturbed body of the mound, and was easily removed in order that the shaft might be viewed in its entirety. At its bottom, at the eastern side, were located the plates of mica covering the floor and extending into the undisturbed body of the mound. The significance of this mica deposit, regarding which Squier and Davis made such interesting surmises, will be made plain in succeeding pages. At the western edge of the old shaft was located an elevation of the floor, which later proved to be the edge of the great crematory basin of the mound.

BURIAL NUMBER 9

As one stood at the bottom of the shaft of Squier and Davis, it was most interesting to note with what assiduity they had attempted to follow the mica deposit eastward into the mound. With this in view they had undercut their shaft, just above the floor, to a point almost exceeding the margin of safety, clearly loath to abandon what they realized to be a valuable and interesting situation. Had conditions permitted their quest to extend but a few inches farther to the southeast they would have come upon one of the most remarkable burials of the Mound City Group, which, in turn, would have furnished an explanation of the remarkable deposit of mica.

A section of the primary mound covering this burial, with its heavy stratum of fine sand, is shown in the photograph. The



FIG. 43.—Effigy of the deathcup, central Burial 9, Mound No. 7. Made of wood and covered with copper. Length $13\frac{1}{2}$ in.

dark soil at the base is a log-mold, from one of a number of logs forming the outer structure of the grave. This structure was rectangular, laid up cabin-like, two logs deep, the timbers being about eight or nine inches in diameter.

On the west these logs were held in place by glacial boulders, of one to ten pounds size, piled against the structure on the outside. Within this vault the floor was raised to a height of six inches above the general floor, thus forming an elevated platform. At the center of this platform lay an object apparently made to represent a toadstool of the deathcup variety, and suggesting a wand or baton as its purpose (Fig. 43). The object is $13\frac{1}{2}$ inches in length, and is made of wood, covered with thin copper. Directly over and around this peculiar object were placed the cremated remains of the dead. Adjacent to these remains, at the south, was a copper plate, 10 inches in length, bearing a striking conven-

tional decoration in repoussé, with the eagle-head as the motif (Fig. 44). At the north side of the burial was a second copper plate with a similar but more highly conventional design in cut-



FIG. 44.—Eagle heads repoussé in copper, central Burial 9, Mound No. 7. Length of plate 10 in.

out work (Fig. 45), while at the southwest lay an elaborate headdress of extremely thin and badly decomposed copper, apparently representing the head and horns of some animal.



FIG. 45.—Conventional eagle heads cut in copper, central Burial 9, Mound No. 7. Length of plate 9 in.

At the southeast and northeast corners of the grave respectively were found two flying eagles of copper, with body and feather markings in repoussé, each more than one foot in length (Fig. 46). Elsewhere throughout this grave were placed copper pendants, pearl and shell bead necklaces, and broken spearpoints of rock

crystal. Over the entire grave and its contents were placed large sheets of mica, cut in rectangular form, some of them reaching a size of 14 by 10 inches. A carefully woven coarse matting was found covering the copper objects at the south end of the grave.

THE MICA "PAVEMENT"

The mysterious mica deposit of the mound instead of being the great mica crescent of 20 feet in length was found to be a covering of mica sheets, with an extent of 8 feet in length and 4



FIG. 46.—Effigy eagle made of copper, central Burial 9, Mound No. 7. Length $13\frac{1}{2}$ in.

feet in width. In form it was primarily rectangular but had been made to conform to the rounded contour of the base of the small mound covering burial number 9. Although not so extensive as Squier and Davis believed, this covering of mica was sufficiently impressive in itself. Apparently it had been laid down, topping the sand stratum which covered the primary mound over the great central grave, at its northern margin, as a part of the primitive splendor of aboriginal burial ceremony.

The hieroglyphic or graphic mica, mentioned by Squier and Davis as composing the "crescent," has long been a matter of curiosity among geologists, owing to the uncertainty as to its character. A sample from the "crescent" was submitted to Prof. John H. Schaffner, Department of Botany, Ohio State University, whose report is as follows:

Caused by filamentous iron bacteria, growing between the plates of mica. A species of *Crenothrix* has the power of oxidizing certain kinds of iron. After the *Crenothrix* produced organic matter, filamentous fungi—molds—grew into the material. Probably produced since the mica was buried and in recent years.

From this report it becomes evident that the so-called "hieroglyphic" or "graphic" mica is not a variety of the mineral, but signifies merely a condition—the presence of the filamentous bacteria and the resultant peculiar markings.

The crematory of Mound No. 7 occupied practically the center of the floor and was one of the finest and largest of the entire Mound City Group, being 9 feet long, 6 feet wide, and 10 inches deep. It had been long and extensively used, as shown by frequent mending of burned-out portions, and by the burning of the underlying earth to the depth of one foot. It contained no cremated remains, but such were found scattered upon the floor nearby, where they doubtless had been dropped in removing cremations from the basin to adjacent graves.

It was at this point in the examination of the mound proper that the constant "sounding" of the floor disclosed disturbed soil underneath, and led to the discovery of the sub-floor and basement previously described.

Burial number 10 lay toward the northwestern side of the mound. Its content of cremated human remains was larger than usual, and with them were placed a necklace of bone beads and several perforated bear canines.

BURIAL NUMBER 12

Equally important with the great central grave of the mound, both in number and variety of artifacts contained, was grave number 12, located north from the center of the structure. The construction of the grave likewise was very similar to that

of number 9, logs forming the sepulchre, with the raised earthen platform within. This platform was 6 feet 6 inches in length and 5 feet in width, with its longer diameter extending north and south. In its center were the usual cremated remains and with these and covering all parts of the platforms were numerous artifacts of copper, obsidian, and mica.

At the northwest corner of the platform lay an ingeniously constructed belt, the leather of which was still fairly preserved in parts by contact with copper. Upon this belt were mounted a total of 18 copper turtles, about 2 inches in length and $1\frac{1}{2}$ inches wide. The carapace of each turtle was well formed and pierced with holes running along both sides. The plastron is cleverly fashioned from two pieces of copper, one of which was designed to serve for attachment to the belt. Within the turtles were placed as rattles either small pebbles or beads.

Near the effigy turtles were found two large and beautifully fashioned obsidian spears, measuring $7\frac{3}{4}$ inches in length. One of these (Fig. 47) is almost transparent. Near the center of the grave was a large copper plate, finely made and well preserved. It is covered on one side with leather. In conjunction with this plate were found a pair of spool-shaped ear ornaments, one lobe of each being of copper and the other of native silver. The north-central and eastern parts of the grave were covered with more than a dozen star-like figures cut from copper and averaging about $2\frac{1}{4}$ inches in diameter (Fig. 48).



FIG. 47.—Obsidian spear point, Burial 12, Mound No. 7. Almost transparent. Length $7\frac{3}{4}$ in.

Associated with these stars were two conventionalized objects of copper, resembling bats, each 5 inches long and $6\frac{1}{2}$ inches wide. In the same part of the grave was found a copper plate 10 inches in length, representing the hawk or eagle, in an upright posture. The eyes, feather markings, and body lines are executed in repoussé, while at the neck, but on the reverse side, is a large

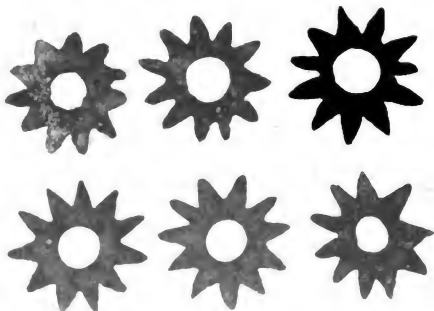


FIG. 48.—Copper stars, Burial 12, Mound No. 7. Diameter $2\frac{1}{4}$ in.

pearl bead, the thread by which it is attached being preserved by the oxidation of the copper. At the east-central part of the grave were found more than one dozen copper pendants, ranging in length from 6 inches to 8 inches. These were ovate and concaved, having the general form of the laurel oak leaf, and attached to the inner side of several of them, through oxidation of the copper, were shell and pearl beads. To the south of the cremated remains was a circular sheet of mica, 11 inches in diameter, which probably served as a mirror. In close proximity to this mica sheet was an effigy horn of copper, closely resembling in form the horn of the mountain goat (Fig. 49). It is 9 inches long and is charac-

teristically curved and corrugated. Toward the southwest corner of the platform lay a copper headdress in human effigy form. The specimen, which is 9 inches long, and which represents the human female form, is curved to fit the crown of the head in the same manner as those found in Mound No. 13. At the southeast corner of this interesting grave were found several necklaces of fine pearl beads, bear claws, and sharks' teeth, and a number of small ornaments of copper.



FIG. 49.—Effigy horn of the mountain goat, made of copper. Length 9 in.

Burial number 13, the final one of the mound, was of especial interest, both as to contents and the depository which they occupied. The latter, rectangular in form, was cut into the floor, intaglio-like, to a depth of 9 inches. This basin, in turn, was enclosed with logs 9 or 10 inches in diameter, and within this enclosure was a clay floor, or platform; at about its center was placed a fine copper axe, over which, and covering the greater part of the platform, were sheets of mica. Upon this mica were scattered the incinerated human bones, with which were the fragments of a large crystal-quartz spear, a necklace of shell beads, and two bone needles. At each corner of the grave and intermediary on each end and one side, were placed large shell containers. These, seven in number, were fashioned from the species known as *Fulgar perversum*, found in the Gulf of Mexico, through removal of a portion of the body whorl and the columella.

I have described the two important mounds of the Mound City Group, and the results and conclusions drawn from the complete examination of the group may be summed up as follows.

SUMMARY

The final exploration of the Mound City Group of earthworks by our survey shows that certain of Squier and Davis's conclusions as to the purpose and use of the mounds, or rather of the pre-structures now represented by mounds, are, in part or wholly, incorrect. Lack of sufficient evidence, and perhaps faulty interpretation of the evidence available to them, appear to have been the causes for rather far-fetched surmises and statements unsupported by facts. In the Introductory Note to this report the principal ones of these questionable conclusions were mentioned. These were, in substance: That the builders of the Mound City Group practised human sacrifice; and that, from this custom, they should be in some way related to the great culture group of Mexico and Central America; that certain basin-like receptacles constructed upon the floors of the mounds were altars upon which human sacrifices were made; that the so-called stratified mounds were not places of sepulcher. To these may be added their statement that the sacrificial fires were so intense as to melt copper, to say nothing of other substances with much lower melting and fusing points.

As to the first of these inferences, it may be stated that the idea of human sacrifice was in no way borne out by our investigations. The sites of the Mound City Group were found to be similar in every way to that of the Tremper Mound, on the lower Scioto, where the sacred structure, with its crematories and depositories, was used solely for the cremation and burial of the dead and for the attendant funereal ceremonies. The present conclusion regarding the surmise as to human sacrifice automatically answers that as to relationship with the southern culture groups.

As to the question of "altars," upon which human sacrifice was made, it has been demonstrated once again that these basin-shaped receptacles were merely crematories, used in preparing the dead for burial in the manner to which their builders were

accustomed. All the mound sites of the Mound City Group examined by our survey contained from one to three crematories; in one small mound, in which Squier and Davis declared there was no crematory, three were found. It is worthy of note that in those mounds possessing two or more crematories the proportion of burials was less, showing that the principal function of such had been that of cremation, as supplementing others of the group. Although Squier and Davis declared that the so-called altars in Mounds 3 and 8 served as depositories for artifacts, not a single one of the twenty uncovered by our survey was used as such. All were found to be devoid of contents beyond scattering charred human bones and fragments of artifacts carefully left within them. It is significant, also, that often the cremated burials, in their prepared graves, contained pieces from the burned and fractured sides and bottoms of the crematories nearby.

With respect to the contention that the stratified mounds contained no burials, it is sufficient to say that in every mound examined our survey found burials. This was true particularly of the great central mound, No. 7, a highly stratified structure, in which in addition to the sand strata, the mound, at a given height, had been completely sealed over by a layer of puddled clay.

The supposed great intensity of sacrificial fires in the so-called altars, and the resulting fusion of metallic artifacts associated therewith, has been fully discussed in the description of Mound No. 8, where it was shown that no fires whatever had been kindled over the deposit, where found, and that a substance supposed to be fused copper was not in reality copper, but a mineral with a much lower melting point.

THE OHIO STATE ARCHAEOLOGICAL
AND HISTORICAL SOCIETY,
COLUMBUS, O.

FEATHER MANTLES OF CALIFORNIA

By CHARLES C. WILLOUGHBY

FROM the narratives of early explorers of the region now known as the United States we learn that the Indians from Massachusetts to California made elaborate mantles or blankets of feathers. Some had patterns in brilliant colors; many were made of the iridescent feathers of the wild turkey; others were wrought from feathers of the swan, mallard, goose, and other waterfowl.

These mantles fall naturally into two groups. In the first, the shafts of the feathers were fastened to a netted or woven fabric, the feathers overlapping one another as in nature. These blankets must have borne a close resemblance to the feather garments of Peru, and also to the mantles of pigeon feathers made by the Maori of New Zealand. The best Indian blankets of this group were probably of as good workmanship as is shown in the celebrated feather capes of the Hawaiian Islanders. Mantles with overlapping feathers were in use in California, also over a considerable portion of the Great Central Basin, and eastward to the Atlantic Coast. Du Pratz describes them as follows:

With the thread which they obtain from the bark of the bass tree they make for themselves a kind of mantle which they cover with the finest swan feathers fastened on this cloth one by one, a long piece of work in truth, but they account their pains and time as nothing when they want to satisfy themselves

The feather mantles are worked on a frame similar to that on which wig makers work hair. They lay out the feathers in the same manner and fasten them to old fish nets or old mulberry-bark mantles. They place them in the manner already outlined one over another and on both sides. For this purpose they make use of little turkey feathers. The women who can obtain feathers of the swan or Indian duck make mantles of them for the women of the Honored class.¹

It is doubtful if a good example of this extensive group of feather garments made by our northern Indians is in existence

¹ Du Pratz, *Hist. de La Louisiane*, II, 191-192, 1758.

today. Among the Pomo, Yuki, Wintun, Wailaki, Mewok, northern Maidu, and probably other California tribes, a degenerate form of this type, specimens of which are in the Peabody Museum, is still used in dances. They are, however, very coarsely made of large feathers, and probably bear but a slight resemblance to the better examples of older work.²

The second group of feather mantles was found throughout the cliff-house region, also in California, Oregon, Washington, British Columbia, and probably in other sections. The blankets of this group are woven, and they may be divided into three subdivisions according to the manner of using the feathers.

In the first and most primitive subdivision, the downy skins of young waterfowl or the feathered skins of the more mature birds were cut into strips, twisted, and used as warp cords, or they were wrapped about warp cords of fiber which were then joined in simple twined weaving. The construction was the same as in the more common type of rabbit-skin blankets which are so widely distributed. This form of feather blanket is rare in collections. There is a good specimen from the Koskimo in the Peabody Museum. They were also made by the Chinook, are reported by Dr. Dixon to have been woven by the northern Maidu, and were doubtless once used over a considerable area. They are of a coarse texture but warm. Very old examples of this work in the Peabody Museum are also shown in the feather borders of the rabbit-skin blankets from the graves of the ancient Basket-makers.

In the second subdivision of group two, the webs are stripped from the larger feathers of various birds and wrapped around the warp cords before weaving. The best blankets made in this way are handsome, warm, and durable. They were used by the Cliff-dwellers, evidently also by the Maidu of the Sacramento Valley, and probably by other tribes. Two excellent examples of this type are illustrated in Plate IV.

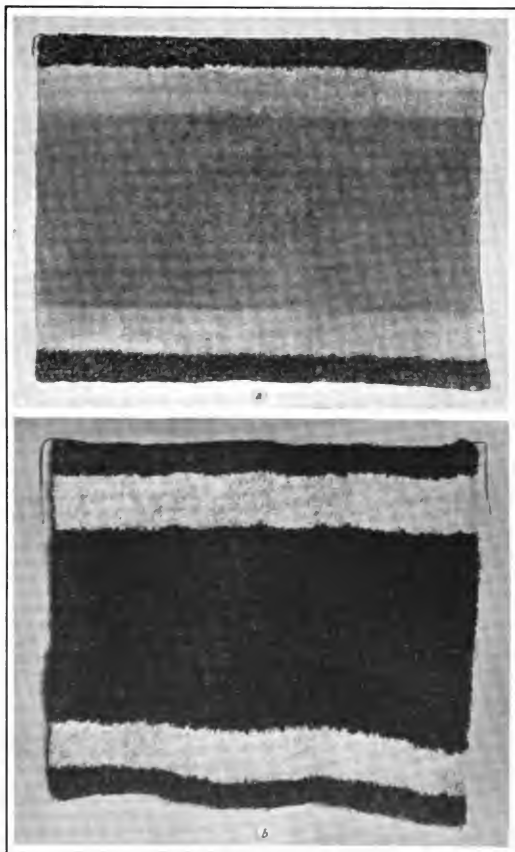
In the third subdivision, the down of waterfowl is mixed with dog hair, or mountain goat wool, before spinning, or is caught

² For typical examples of these coarse dance capes see R. B. Dixon, *Bulletin, Am. Mus. Nat. Hist.*, vol. xvii, pls. xl, xli, and fig. 24.

into strands of this material during the process of spinning. Very attractive blankets were woven of the fluffy cordage thus prepared. These were made by some of the tribes of Washington and British Columbia.

The blanket illustrated in Plate IV, b, undoubtedly made by the Maidu Indians of the Sacramento Valley, California, belongs to the second subdivision of group two. It was given to the Peabody Museum of Harvard University in 1913 by Miss Lucy H. Eaton of Boston in memory of her sister, Catherine S. Eaton, whose death occurred a short time previous to the gift. It was obtained in California about the year 1821, by William Alden Gale. Mr. Gale sailed as clerk on the *Albatross* from Boston to California in 1810, remaining on the coast as agent for Bryant and Sturges, Boston, until 1835. He gave the blanket, several fine old Chumashan baskets, and other ethnological specimens which he had collected in California, to the family of his friend, Joseph B. Eaton, whose daughter, above mentioned, presented it to the Museum.

It measures about 50 x 56 inches. Its technic is shown in Fig. 50. The material from which the cordage is made appears to be Indian hemp (*Apocynum cannabinum*) throughout. The double woof cords (a, a) are suspended at intervals of about an inch from a finely pleated cord (b), the ends of which are carefully tapered. A cross-section of this cord approaches a triangle. Each of the three faces is shown in the drawing. The warp cords (c) are double, are not twisted together, and are closely wrapped with webs of feathers which have been stripped from their shafts. The method of winding and lashing the two cords together is shown in d. This double feather-covered warp cord is carried back and forth the length of the blanket, and is held in place by the double woof cords in a variety of twined weaving, the technic of which is similar to the wrapped twined weaving of Mason, excepting that both strands of the double woof cords are equally pliable and appear alike on either side of the blanket. Each strand of this twisted cord crosses the warp cords continuously on one side of the blanket only, not alternately as in the cliff-house



FEATHER MANTLES PROBABLY MADE BY THE MAIDU INDIANS OF THE SACRAMENTO VALLEY
a, American Museum of Natural History; *b*, Peabody Museum of Harvard University.

blankets. In this way a closer, firmer texture is produced, and the garment is much more serviceable than the cliff-house mantles.

The lower edge is finished as shown in e. The ends of the two strands of twisted woof cord are tied below the last warp cords in a square knot. One of them is then looped upon itself and wrapped several times with its companion, which is then carried through the loop at its lower end and knotted. The end

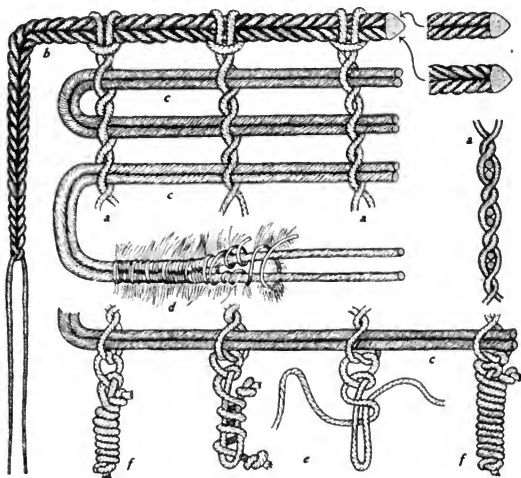


FIG. 50.—Details showing construction of mantle figured in Pl. IV, b.

of the first strand is also knotted close to the first wrapping, and the ends of the two strands cut close to the knots. When finished these pendent cords appear as in f.

The feathers used in the body and in the upper and lower borders of this garment are webs stripped from the wing coverts of the mallard duck. Those used in the white stripes are doubtless also from some species of waterfowl.

The work shown in this garment is of higher grade than that of the cliff-house blankets, dilapidated fragments of which are in our collections.

In the National Museum at Washington is a very close duplicate of the blanket described above. It has the same light stripes across a dark ground, and is apparently made of feathers from the same species of waterfowl. It was collected by the Wilkes Expedition, and is attributed in the old catalogue of the Museum to the region of northern Washington or Straits of Juan de Fuca, for the reason apparently that it bears a superficial resemblance to blankets of hair and bird down known to have been obtained there by Wilkes. If we turn to chapter five of the fifth volume of the United States Exploring Expedition, however, we learn that Captain Wilkes sent the *Vincennes* to San Francisco in the summer of 1841. On the 20th of August, Lieutenant Commandant Ringgold with six boats and an Indian pilot left the ship for an expedition up the Sacramento River. On August 29, three days' journey above the junction of Feather River with the Sacramento, they reached a Maidu village, of which a good description is given. This is probably the first published account of the habitations of this people. Ringgold states that some of the Indians

had feathers in their hair arranged in different ways . . . Their fillets of feathers somewhat resembled those worn by the chiefs at the Sandwich Island; and feather cloaks were seen at the village resembling some we had seen in the north near the Straits of De Fuca.³

The ethnological specimens collected by the Wilkes Expedition are among the most valued objects in our older eastern museums. The collections were extensive and comprise many rare objects from the Pacific Islands and western America. It seems more than probable, therefore, that the feather blanket in the National Museum, which is a duplicate of the one previously obtained in California by Mr. Gale and now in the Peabody Museum, came from this Maidu village.

The third blanket of this kind known to the writer is illustrated in Plate IV, *a*. It is in the American Museum of New York. It

³ Charles Wilkes, United States Exploring Expedition, vol. v, p. 185, (Lea and Blanchard, 1845 Edition).

was purchased from Mr. W. A. Hooton of Brooklyn, New York, in 1914, in whose family it had been since 1830, "at which time it was purchased either in Mexico or California." It was undoubtedly obtained in the latter locality. The stripes have the same arrangement as in the two blankets above described, but the broad central band is in gray feathers instead of mottled black. The National Museum and the Peabody Museum blankets are both new, but the American Museum example is somewhat soiled and shows wear. All three were probably made by the Maidu, and the workmanship shown is of excellent quality. They undoubtedly represent the highest grade of this class of featherwork.

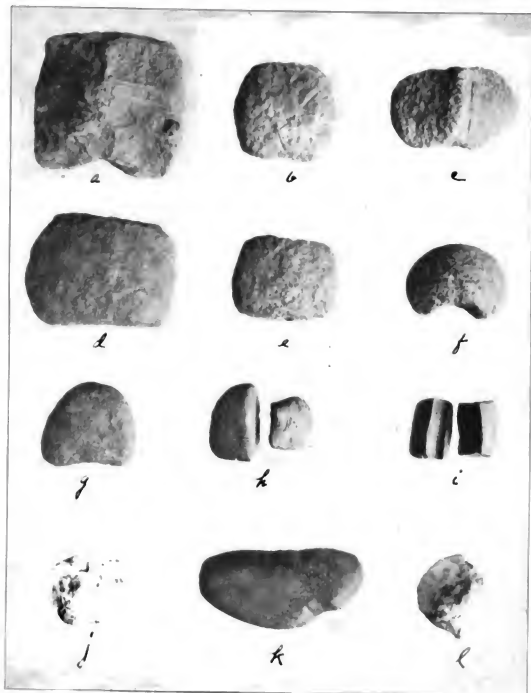
PEABODY MUSEUM,
HARVARD UNIVERSITY,
CAMBRIDGE, MASS.

A PROCHLORITE BANNERSTONE WORKSHOP

By JOHN LEONARD BAER

ONE and a half miles below the aboriginal workshop on Mt. Johnson Island in the Susquehanna River, described in the October-December, 1921, number of the *American Anthropologist*, is another bannerstone workshop. This one is located on the east bank of the Susquehanna below Peach Bottom, Lancaster County, Pa. It does not compare in size with the one formerly described, where hundreds of slate bannerstones were shaped; neither was the same material used nor did the same shape of bannerstone prevail. While at the island workshop almost all of the unfinished specimens found were of slate and of the winged type with well-defined centruns; those found at the lower workshop were made of prochlorite and usually of a double-convex form truncated at top and bottom or bottom only and without any pronounced centrum.

Prochlorite is a soft green stone containing crystals of magnetite. When found in situ it usually occurs contiguous to steatite and is sometimes wrongly called green soapstone. While this material was chosen for making bannerstones, partly because of the ease and safety with which it was worked, the magnetite crystals it contains were a factor that entered into the choice. The shining black crystals added materially to the beauty of the finished bannerstone. The nearest source of this material is about five miles down the river, at Bald Friars, Md. No positively aboriginal prochlorite quarry had thus far been identified here; and it is a question whether the Indian needed to quarry the material since there is such an abundance of it found along a small stream which enters the Susquehanna at this point. However, some of the numerous pits covering the side of Bald Hill may have been made by the Indian in search of prochlorite containing the larger crystals of magnetite. We know from unfinished and broken vessels found that he quarried steatite here



PROCHLORITE BANNERSTONES AND SHAPING TOOLS

although all of the original pits made by him have been enlarged by the white man in search of a better grade of steatite and spar. While scattered specimens of unfinished bannerstones have been found here, the uncultivated condition of the fields is unfavorable to the identification of a workshop.

Prochlorite was worked into bannerstones with much more ease and with less danger of breaking than was slate. The crude blocks of prochlorite were chipped roughly into shape while slate would not lend itself to this speedy process. The softness of the material made scraping easy and eliminated much of the tedious pecking necessary in reducing slate. Other processes in the manufacture were identical with and employed in the same order as was observed at the slate workshop.

Plate V, *a*, shows a roughly chipped block of prochlorite; *b* shows a block of prochlorite pecked into a double convex form; *c* presents one of the few bi-pinnate specimens showing a well-defined centrum; *d* shows a specimen pecked to the desired thickness and truncated on two edges; *e* shows a specimen where the hole is started with a tapering drill so as to locate the centrum before finishing the pecking and scraping; *f* presents a pecked, scraped, and partly polished specimen with a shallow hole in the concave depression on one edge; *g* shows a specimen not so well finished as *f*, but with a hole started with a hollow drill. While finishing with a core drill the hole which had been located with a solid drill was the usual order of procedure, it was not the invariable rule. Occasionally the hole was finished with a tapering drill and sometimes worked from both ends. Few specimens have been observed in which drilling with a hollow drill was operated from both ends. A number of unfinished specimens in which the core is still in place have been drilled nearly through with no indication of an intention to finish the work from the opposite end.

Plate V, *h* and *i*, present halves of finished bannerstones. The small one in *h* shows a large crystal polished flush with the green stone. Plate V, *j* and *l*, show pecking hammers of white quartz of which many have been found about the workshop; *k* shows one of the numerous abrading tools of coarse sandstone.

A comparison of the number of broken and unfinished specimens found at these two bannerstone workshops leads to the conclusion that on the island the slate was worked into convenient forms and many of these carried away to smaller workshops to be finished, and that the numerous unfinished prochlorite specimens have been brought from a larger workshop near the source of the material.

DELTA, PA.

A RECENTLY DISCOVERED STONE SCULPTURE IN ÖLAND, SWEDEN

By GEORGE T. FLOM

UNTIL a few years ago no examples of rock-tracings or like sculpturings had been found in the Baltic islands of Sweden. However, the discovery in 1910 of an elaborate tracing of cups, ships, sandals, and axes, at Hågvide, Lärbro Parish, Gothland, and of a sculptured stone on the Island of Öland in 1916 now gives these two island provinces also one each. Both finds are exceedingly interesting and in some points unusual. The following observations upon that of Öland are here offered as a small contribution to the vexed question of the meaning of the rock-tracings.

The carved stone is located on the Klinta Farm, No. 3, in Smedby Parish, southern Öland; when found it lay with the flat side down, and almost wholly covered with earth, just inside a stone wall separating the farm from the highway.¹ The somewhat raised ground inside the wall was examined and an excavation made by T. J. Arne in 1917, who found that it represented what was left of a grave about 18 m. in diameter, a portion of the grave having been cut away on the occasion of the building of the highway. Of the contents of the grave I shall mention only the two skeletons. Arne dates the grave and the incised stone as belonging to the second period of the Bronze Age, hence the 16th-15th centuries B. C.²

The stone, which is here reproduced as Fig. 51, is a trapezoidal-triangular granite boulder 1, 16 m. tall, 50 cm. thick, 68 cm. broad at the base, and 45 at the top.³ One of the narrow sides together with the slanting base and also the top are compactly covered with small, round cup-depressions, 150 in all. The broad

¹ It is described by T. J. Arne in an article entitled "Ölands första kända brons-Åldersristning," in *Fornvännen*, 1917, pp. 196-201.

² *L. c.*, p. 200.

³ *L. c.*, p. 198.

side contains figures as follows: at the top, three large concentric circles with a central hollow; at the left of this, four cups arranged in quadrangular form; at the center, what appears to be a horse, and below that, more deeply incised, a ship extending across the whole stone; at the base two schematicised horses and a trident-like figure. The ship shows a high prow and high stern; there are crew-strokes indicating seven rowers, whose heads are indicated by very small cups exactly as are those of the Kivik grave near Simrishamn, Skåne, and its horse figures are the same as on the latter and on some Norwegian tracings. It is supposed that the



FIG. 51.—Sculptured stone, Smedby Parish, Öland, Sweden. Side and front views.

massive block cannot have occupied a place in the cist, but stood on the grave as a monument, as in the case of the Villfara stone of southeastern Skåne.⁴

There are several interesting features about this stone. While it does not necessarily follow from the character of the configuration on the two carved sides, that the cups were cut later than the sun-emblem and the other figures on the broad and smoother side, as Arne is inclined to think, that is a possibility. The monument, then, was originally set up with its sun-symbol carving of concentric circles as the principal figure, and with the

⁴ Noted by Arne, l. c., p. 200. The weight of the stone is over a ton.

horses and the ship at the base. The four cups at the top are evidently arranged to form a square figure, the shape here being due to the narrowness of the space where the figure is placed. We have here, then, evidently one form of the four-spoked wheel-symbol, hence a second sun-symbol by the side of that of the concentric rings and central cup. But if the two figures at the top are connected with the sun-cult, the two at the base and nearest the grave proper, as the house of the dead, that is, the horse and the ship, would seem to be connected with the death-cult. There were two skeletons in the grave; but as the grave had been partly destroyed before, we cannot say whether the number of each group of symbols originally was determined by the number of bodies buried there (the figure in the center, which is now very hard to make out, Arne thinks may possibly represent two figures). And in this case what does the trident represent?

The compactness of the cups and the fact that they are carved in the same way at the top are not without interest. In this latter feature we are reminded of such a position of numerous cups on one of the few cupped stones found in Germany, namely one near Meissen.⁵ But here the cups are arranged in three concentric curved rows. On the Öland stone there is no such arrangement. The closeness with which the cups have been placed is unusual; I cannot recall anywhere a similar case in the north.⁶ On the Tuna stone No. 3,⁷ which contains 120 cup-hollows, there are uncarved spaces,⁸ and likewise on the Borreby stone.⁹ On the latter some are very large, others of varying size, many are shallow, some much deeper; they would seem to have been applied

⁵ This cupped stone is shown as Fig. 19 in *Observations on Cup-shaped and Other Lapidarian Sculptures in the Old World and in America*, by Charles Rau, Washington, D. C., 1881.

⁶ Cf., however, the cup-and-ring carved ball from Dunfermline, Scotland, pictured on plate I in vol. XI of the *Proceedings of the Society of Antiquaries of Scotland*. The figures on the rock-sculptures near Lac de Merveilles, Italy, are made by compact cuppings.—G. de Mortillet, *Formation de la Nation Française*, Paris, 1897, pp. 176–177.

⁷ Sörmland, Sweden.

⁸ First published on p. 192 of vol. X of *Svenska Fornminnesföreningens Tidskrift*. Also shown in *Bidrag till Sörmlands Kulturhistoria*, XIV, p. 28.

⁹ Illustrated in *Aarbøger for nordisk Oldkyndighed*, 1917, p. 88.

by different persons and may represent a long period of time. This is precisely what Arne supposes for the cup-marked side of the Öland stone. He says of the cups, "their irregular position makes it likely that they were not cut all at the same time, but during a long period of time, one for every occasion, when a magic ceremony was carried out at the grave." It is clear that cups situated, as here and often elsewhere, on the side of a stone in a grave or in the open cannot have been receptacles of food for the dead, and so connected with some sacrificial ceremony. But they may, to be sure, be connected with some magic rite in which the cups were rubbed with fat or blood as the author supposes, calling in evidence this practice from the last two centuries.¹⁰

The cups on the Öland stone have been carved so close together as to present a compact body of cups covering the whole surface of this one side, with no vacant space left anywhere on it. In many parts they do actually present, apparently, arrangements of rows, squares, and round groups; but this is clearly accidental and not with purpose. They present this appearance, and it has been possible to get the surface covered so completely, because, after placing the first cup on one side or at the top, each new cup has been placed close to it at the side or immediately above or below. It is possible that the whole body of cups, the cupped surface in its entirety, was cut before the burial, or at any rate at the same time that the figures on the broad side were cut.¹¹ In either case, whether cut before or one by one in connection with later magic ceremonies, it is strange that the cups should all have been placed on this side. May the reason be that the monument, as originally placed, or intended afterwards to be placed, stood so that the two carved sides faced the south (or south and east)? Then the reason why the cups were all cut on

¹⁰ In other regions other ideas and practices are associated with the cupped stones. The problem is a difficult one, but it is possible that certain practices of later times are survivals of Bronze Age rites connected with the cup. The cup-mark is found first in the dolmens of the Neolithic Age. See also above, note 3.

¹¹ It has been proved in many places that the sculptured figures have been applied before the planting of the stone in the grave. This is the case with the Landerslev stone, Sealand, Denmark, one stone in the dolmen of Keriaval, Locmariaquer, Brittany, France, and some of those in the New Grange tumulus, County Meath, Ireland.

the same side might be that the efficacy of such a supposed magic ceremony was conditioned upon the presence of the sun's rays in the cup during the ceremony.

One more observation suggests itself. While a few cups run over into one another, forming oblong bowls (lower left-hand side), and two or three at the top are larger than the rest, the great majority are round and of uniform size, and apparently of uniform depth also. Now incised depressions are often not round; that is, in a body of incised figures containing cups, the cups are not always round. But they are everywhere prevailingly round; it is the same in all countries. And the farther back we follow the cup-markings the more uniformly do we find them to be round. The roundness of the cup has a symbolic significance.

What is the original meaning of the cup in the rock-tracings? The purpose of the cup may have changed somewhat in the course of its history from the period of the dolmens to the close of the Bronze Age, and it may, therefore, have come to assume a place in practices with which it was not originally connected. But it is everywhere found together with some form of ancient sun-worship among Indo-European peoples (and elsewhere). And throughout this period of 2000 years or more in the Scandinavian North, and within the same period of time in England, Scotland, Ireland, France, Spain, Switzerland, India—to name only the countries where they are most abundant—in very considerable measure they are associated with ancient sepulture, even though not everywhere. And when so found the cups are seen also to be associated with one or more other figures that are well-recognized as sun-symbols. Further, as we follow these various sun-symbols back to the earliest graves, we find that the wheel is the oldest, either as a wheel of four spokes, or as a wheel without spokes, the so-called circle or ring. Herewith the dolmen builders of the New Stone Age of the North, 2500 B.C. and before, symbolized the roundness and the movement of the sun; and they thought of it as a disc, or a circle; but they also thought of it as a ball, and of course often as a flaming ball. The cup is the smallest of the figures. But there may be other reasons why in many places it appears massed on the sculptured surfaces. What I would like

especially to emphasize in this connection, however, is that it also often appears in isolation, or with but one or two other cups, or with one or two other sun-symbols. As an example I give here as



FIG. 52.—Stone d, Cairn V, from Loughcrew, County Meath, Ireland.

Fig. 52 an illustration of Stone d, Cairn V, from the tumulus at Loughcrew, County Meath, Ireland, showing the rayed circle, the symbol of the radiant sun; there is no other figure. Compare,



FIG. 53.—Stone from a cist at Culbirnie, Inverness-shire, Scotland.

then, Fig. 53, which is of a cupped stone from a stone-cist of Culbirnie, near Beaully, Inverness, Scotland. There is the single figure of a cup-depression, and practically nothing else.

I submit that the cup, which is older than any of the other round sun-symbols—ring, four-spoked wheel, spiral—is the earliest of all sun-symbols; that when our Indo-European ancestors first sculptured in stone the image of the sun in connection with

some practice in their worship, they carved the hemispherical cup. Later they began also to cut it in contour—and we have the ring or circle. The four-spoked wheel comes last of the three; it represents a more advanced stage of culture, presupposing, as it undoubtedly does, the analogy to the four-spoked wheel of the vehicles of the Neolithic Age. If the above be correct, that the cup is originally the symbol of the sun, it would, possibly, have been suggested especially by the ball of the sun as it rises and sets. Herein lies, no doubt, the reason for the connection of the cup with burial and the death-cult, with which it is everywhere associated in its earliest appearance among Indo-European peoples, and with which it is intimately associated also in all its later history.

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THE FAMILY HUNTING TERRITORY AND LENÁPE POLITICAL ORGANIZATION

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THE discovery by Speck of the family hunting territory as the basis of the social structure of the Algonkian of eastern Canada and the northeastern United States has revealed to ethnologists the importance of a previously neglected viewpoint in social evolution.¹ Through subsequent researches Speck has further demonstrated the existence of the institution among the Wampanoag and the Massachusetts, by use of evidence derived from a study of colonial legal records, and disclosed what appears to be the vestiges of the same institution among the Algonkian of Virginia (Pamunkey).² In the latter study Speck directed attention to the Delawares, believing that the institution obtaining among the primitive Algonkian hunting bands of the north and northeast might be considered as common to all the Algonkian before their contact with intrusive or alien cultures—Iroquoian, other Indian, or European.³

The evidence to be here submitted seems to demonstrate the positive existence of the hereditary family hunting territory as the basis of the social organization of the tribes of the Delaware River Valley—the Unami and the Unalachtigo Lenápe. The evidence appears more strikingly exhibited in the contrast it affords with the tribal organization and the territorial institution as recorded

¹ Cf. Lowie, R. H.: "Primitive Society," Boni and Liveright, N. Y., 1919, pp. 212 seq. See Speck, F. G.: (1) "Family Hunting Territories and Social Life of Various Algonkian Bands of the Ottawa Valley," Memoir 70, 1915, Anthropological Section, Geological Survey of Canada; (2) "The Family Hunting Band as the Basis of Algonkian Social Organization," *American Anthropologist*, vol. 17, 1915, pp. 289-305; (3) "The Social Structure of the Northern Algonkian," *Publications of the American Sociological Society*, vol. 12, 1917.

² Speck, F. G.: (1) "Territorial Subdivisions and Boundaries of the Wampanoag and Massachusetts Indians," MS, 1922; (2) "Pamunkey Hunting Grounds," MS, 1922.

³ "Pamunkey Hunting Grounds," p. 14: "We may wonder if some vestiges may not yet be found among the Delaware or in records pertaining to them."

for the neighboring Iroquoian peoples of New York and Pennsylvania.

The contrast lies in the autonomous nature of the family group and its complete sovereignty over its hereditary territory among the Delawares, and the complete absence of this autonomy and the institution which underlies it among the Iroquois.⁴

In examining Iroquois material we find in their mythology the statement that in the early days of the earth the Sky Holder divided the forest among the clans, each receiving a hunting ground.⁵ And of course there is evidence that formerly these clans may have been local groups, of greater or lesser size; in some remote past the Iroquois social organization was presumably that of non-agricultural hunters. For the historic Iroquois, Hewitt speaks of "the community of hunting grounds" as the existing condition.⁶ The so-called constitution of the Five Nations says: "These clans [the modern matrilineal sibs, presumably] distributed through their respective nations, shall be the sole owners and holders of the soil of the country, and in them it shall be vested as a birthright."⁷ That this was intended to be a collective ownership is indicated by the Deganawideh legend, which refers to a community of hunting rights within the bounds of the confederacy.⁸

⁴ It is possible that there was some slight limitation among the Delawares of this autonomy by the neighboring families, who, in the agricultural phase of what the late Dr. Steensby has happily denominated the "annual economic cycle" (in "An Anthropogeographic Study of the Origin of Eskimo Culture," Copenhagen, 1916), all dwelt together as a band of families in the village where their agricultural pursuits were carried on, and who were in possession of adjoining hunting territories.

⁵ Converse, H. M.: "Myths and Legends of the Iroquois," Bull. 125, New York State Museum (Univ. of the State of N. Y.)

⁶ Hewitt, J. N. B.: Amer. Anthropol., vol. 19, 1917, p. 435.

⁷ Parker, Arthur: "The Constitution of the Five Nations," Bull. 184, N. Y. State Museum.

⁸ "The Traditional History of the Origin of the Confederation of the Five Nations, or, The Code of Dekanawideh," Bull. 184, N. Y. State Mus., p. 103. "Then Dekanawideh continued and said: 'We have still one matter left to be considered, and that is with reference to the hunting grounds of our people, from which they derive their living.' They, the Lords, said with reference to this matter: 'We shall do this now: We shall have only one bowl (or dish) in which shall be placed one beaver tail, and we shall have all coequal right to it, and there shall be no knife in it, for if there be a knife in it, there would be danger that it would cut some one and blood thereby be shed.'

There is a somewhat equivocal statement of Sir. Wm. Johnson's made to the Lords of Trade, Oct., 1764, which, in all caution, should be noticed. He says: "That it is a difficult matter to discover a true owner of any lands amongst Indians, is a gross error, which must arise from the total ignorance of the matter or from a cause which does not require explanation. Each nation is perfectly well acquainted with their exact original bounds; the same is again divided into due proportions for each tribe, and afterwards subdivided into shares to each family, with all of which they are most particularly acquainted; neither do they ever infringe upon one another or invade their neighbor's hunting grounds."

Johnson is speaking here of Indians in general and not specifically of the Iroquois, but they were the people he knew best and about whom he was especially concerned in this letter. The tribal boundaries of the Iroquois were of course well defined, but those boundaries had no actual function. The allotment of "shares to each family" may well refer to the Iroquois practice of assigning, for use to each family, a share in the village agricultural clearing.⁹

Dealing specifically with the question he was concerned with—a land sale which the Iroquois maintained was invalid—Johnson makes the complaint for the Indians, a complaint voiced frequently in colonial days, "that it [the sale] was privately transacted, with only a few Indians, contrary to the usual custom"; which might lead us to suspect that we had here family proprietors who were selling their lands without tribal sanction. But Johnson later on clears up this equivocal part of his letter at least by explaining that "it appears, by the Indian deed, that it was

(This one dish or bowl signifies that they will make their hunting grounds one common tract and all have a coequal right to hunt within it. The knife being prohibited to be placed into the dish or bowl signifies that all danger would be removed from shedding blood by the people of these different nations of the confederacy caused by differences of the rights to the hunting grounds.)"

⁹ Presumably, with the *diffusion* of agriculture to the Delawares, this subdivision of a communal clearing, a feature of the agricultural complex which is very widespread, was also adopted by the Delawares, but I know of no reference to the fact. Their agriculture was carried on in villages containing several families.

signed by only two tribes, whereas they never consider any sale as just which is not subscribed by every tribe."¹⁰

Neither for the Susquehanna Iroquois, the Minquas, do we have any evidence for the existence of the family hunting territory; but we find the same practice of considering the title to the land as resting in the tribe or the confederacy of tribes. We have record of an early gift of land to the Swedes by four sachems—not as owners, but as representatives of "their united nations," and signing the deed as such.¹¹

This community of hunting grounds then sets apart the Iroquois from the Delawares as well as from those Algonkian tribes to the north and east who had participated less in the diffusion of Iroquois culture; and places the Delaware, as concerns the fundamental basis of their social structure, on the side of these north and east Algonkian.¹² This contrast is emphasized when we note that the economic life of the Iroquois in the middle of the seventeenth century offered no notable contrast to that of the Delawares. It is plainly suggested, therefore, in view of other ethnological and archaeological support,¹³ that the Delawares, coming but recently into the circle of diffusion of an agricultural economy—which came to them from the southward possibly¹⁴—have retained in all its vitality, because of the relative recency of agriculture in their economy, an institution characteristic of their more primitive non-agricultural economy, in which the expedi-

¹⁰ O'Callaghan: "Documentary History of New York," vol. 7, p. 671 seq.

¹¹ Johnson, Amandus: "The History of the Swedish Settlements on the Delaware," 2 vols. Univ. of Penna., 1911, p. 569. Johnson (p. 332) identifies the Mantas Indians as Minquas, but this is unsupportable and, with the resulting errors, need not detain us. See p. 454, n. 16.

¹² The Mahican also exhibit a transitional social organization.

¹³ Skinner, A. B.: (1) "Chronological Relations of Coastal Algonkian Culture," 19th Internat. Congress of Americanists, 1915, Wash., pp. 52-58; (2) "Notes on Iroquois Archeology," Heye Museum, N. Y., 1921; (3) "The Pre-Algonkian Indians of Central and Western New York," Ibid., 1919, (Bibliography); Cf. Harrington, M. R.: "Religion and Ceremonies of the Lenape," Heye Museum, N. Y. 1921; "A Preliminary Sketch of Lenape Culture," American Anthropologist, vol. 15, 1913, pp. 208-235.

¹⁴ See Spinden, H. J.: "The Origin and Distribution of Agriculture in America," 19th Inter. Cong. of Americanists, 1915, Wash., pp. 269-276; Kroeber, A. L.: "The Tribes of the Pacific Coast of North America," Ibid., pp. 285-408. See p. 394 for certain significant observations on the diffusion of the agricultural complex.

encies of the chase in the northeast of North America had recommended the dispersal of family groups.

Which leads, further, to the support of the tentative explanation offered by Speck in 1917: that the matrilineal reckoning of the Delawares—and the sib organization, if it can be proven that they had the latter in the early seventeenth century—are the result of a diffusion of the Iroquois social pattern.¹⁵

We may now consider the specific data on the Delaware hunting territory complex.

Early in 1651 Stuyvesant determined to locate a fort at the mouth of the Delaware River, by means of which the lower section of the river, at that time controlled by the Swedish fort on the Christina Creek, would be under Dutch control.

As was the custom in this region—coveted alike by Swedes, English, and Dutch—pending the inevitable arbitrament of war, the rather absurd and hypocritical method of justifying one

¹⁵ (a) Morgan's claims for the universal priority of the matrilineal sib to the patrilineal sib or to the bilateral family have been definitely challenged by American ethnologists. The American theses have been of slow development. The studies of Morice and Boas on the Northwest Coast in the 1890's opened the path, and Swanton's paper in 1905, "The Social Organization of the American Tribes," *American Anthropologist*, vol. 17, definitely formulated the problem and brought into question the commonly accepted interpretation of the data available for all the American tribes. Lowie's 1914 article in the *American Journal of Sociology*, vol. 20, 1914, brought to bear on the problem, subsequently gathered and assembled data. In 1915 Speck raised the issue for the Delaware, in the course of his reply to Hartland's article, "Matrilineal Kinship and the Question of its Priority," in the *Memoirs of the Amer. Anthropol. Assn.*, 1917, vol. 4, no. 1. (See Speck, *Pubs. of the Amer. Sociological Society*, vol. 12, 1917, p. 93, no. 3.)

(b) In regard to the diffusion of Iroquoian culture to the northern and northeastern Algonkian, it may be noted as of significance that Harrington in his 1921 paper on the ceremonies of the Lenápe, before cited, points out that the Munsee, in closest geographical proximity to the Iroquois, were the most influenced by Iroquois ceremony. It may be further observed here, that the tribal organization of the Delawares and the Mohegans, geographically in touch with the Iroquois, includes the distinction between the civil or peace chieftainship and the war chieftainship as a formal institution. This is in contrast to the organization of the other northern and northeastern Algonkian tribes, and in my opinion is the result of a diffusion of Iroquoian ideas. This opinion I have elaborated in a paper, "Distinctions of Peace, War, and Hunting Chieftainship in the Americas and Their Institutionalization" (MS), where I have attempted to distinguish between indigenous origins and diffused ideas.

another's encroachments was to present a formidable parchment in which, over their signatures, the Indian possessors donate or sell their lands.

Stuyvesant promptly took measures thus to acquire lands on the lower west shore of the Delaware. Printz, being informed of the acquisition by Stuyvesant, insisted that the same land had in 1638 been purchased by the Swedes. In the documents exchanged between the two governors we find the most complete evidence of the existence of family hunting territories.

The area with which Stuyvesant was chiefly concerned was that section of what is now the coast of Delaware, some distance below the Swedish fort—a piece of land on which the Dutch Ft. Cassimir was ultimately to be built. It was called by the Indians Quinamkot; by the Dutch, the Sandhook (Sandhocken). Donated to Stuyvesant by the sachem Peminacka in this year, 1651, it had in 1638 been sold to the Swedes by the sachem Mitatsimint, of whom Peminacka was not the heir.

Printz called into conference the heirs of Mitatsimint, who was now dead. *The heirs were* Kotike, the dead sachem's widow, and Kiapes, his son; with two other of Mitatsimint's children, who were apparently very young—their marks, but not their names, are signed to the paper. These sign a paper to the effect that "we, the undersigned heirs of the deceased sachem, Mitatsimint . . . give, by this our writing, the testimony that the land lying below Appachchaihacksingh, to Mettocksinowousingh belongs to no one else than us, *Peminacka being allowed to hunt upon Quinamkot, but not as the owner to sell the same.* We also know that the late sachem Mitatsimint bargained about the said land with the Swedes. . . Besides, [we] will show [or prove] by the savages in the entire river that the aforesaid land has been the property not of Peminacka but of Mitatsimint. . ."

It developed that this right to the land on the part of Mitatsimint's widow and children was denied by Peminacka, who maintained that before Mitatsimint had died that sachem had transferred the right to the land to him, Peminacka.

Stuyvesant, previous to this conference, had received only the oral statement of Peminacka that the Dutch might have the

land. He now obtained a statement written out on parchment, and signed—of which we will speak later.

Printz thereupon hurriedly called a conference of all the Indians involved in the dispute over the land. Kotike, Kiapes, son of Mitatsimint, and Kotike's "blood relation" Quinieck, supported by their friends Siskaokan and Aracheoraman, faced Peminacka, whose statements were supported by his friends the sachems Mattahorn, Sinques, and Orrichime. It here developed that Mitatsimint had granted to Peminacka the right to hunt upon Quinamkot, but nothing more; that this right had been given him on the request of Peminacka's friends; *and that in return for the privilege Peminacka was to make gifts to the owner*, which gifts, however, had never been made.

We are unable to go far behind the documents to learn what was transpiring in the Indians' councils to give occasion for such a dispute. Peminacka, it appears, was overreaching the widow and son of Mitatsimint, consciously and deliberately, and with the support of several of the most important sachems on the river.

The first conference held by Stuyvesant with the Indians in regard to the area of the Sandhook was not with Peminacka alone, but also the sachems Mattehorm and Sinques. The evasive conversation of these chiefs indicate that they are conscious of double dealing; they decline to sign a deed, but make oral donation of the territory. . . .

Stuyvesant asked them if they were "chiefs and proprietors" of the land on the west shore of the lower Delaware, and Mattehorm replied "that they were great chiefs and proprietors of the lands, *both by ownership and by descent and by appointment of the Minquas and River Indians* [the Minquas we will return to]; wherefore they had power to sell and make over the lands. . . ."

During the course of this same conference, Peminacka told Stuyvesant "that the present Swedish Governor [Printz] three or four years ago bought from the Mantas Indians, Siscahoka,¹⁶

¹⁶ May this not be the Siskaokan who supported Kotike against Peminacka? I am inclined to suspect that among the River Indians there was a pro-Swedish party and a pro-Dutch party, which caused dissensions and attempts to overreach one another. (It is to be noted also that these Mantas names are not Iroquoian.)

still living, and Mechekyralames, now dead, some land on the west shore . . . from Wickquacoing¹⁷ unto about Mechechasen¹⁸ of which lands they were not chiefs or proprietors, but one Kyckesycken, in our language Wild Turkey."

This first conference between the Indians and Stuyvesant was held at Ft. Nassau. A few days later, at Camecouck (Tamekonk), the same three sachems, with the addition of Ackehorn, signed a written donation of the land desired by Stuyvesant. This was subsequent to Printz's challenge, through Kotike and her supporters, of Peminacka's right to any of the land, and, Johnson says, "it is significant that Peminacka was not among the signers, although he is mentioned as one of the proprietors. Perhaps the reasons presented by Printz against his ownership of the land were considered sufficient by Stuyvesant to exclude him. We again have only a copy to judge from, however, which is misdated, and we cannot therefore be positive of the omission of Peminacka's name in the original. A later document confirms the view that Peminacka did not affix his signature to the deed and that it (his name, as a proprietor) was perhaps inserted into the text by the Dutch."¹⁹ And in 1654 Peminacka told Rising that he had signed nothing for the Dutch.²⁰

Four days after the donation of the land at Tamekonk, a sachem, Wappingzewan, visited Stuyvesant, and explained that up to date the Swedes had been settling on his (Wappingzewan's) land, without having previously approached him to buy it from him; but that, with the arrival of the Dutch as rivals in the acquisition of Indian lands, Printz had sent for him and asked him

¹⁷ Weccaco, (now Southwark), Philadelphia, the site of a small village of Lenápe, and later the place where Swedish settlers, before Penn, founded what is now the most densely populated portion of Philadelphia.

¹⁸ Spelt also Magechqueshou or Machihachansio (See O'Callaghan, vol. 1, p. 292, n. 3). Supposed to be the creek near Burlington. There was an island of Mekekancon near Trenton Falls (See Johnson, op. cit., p. 335.)

¹⁹ Johnson, op. cit., p. 441.

²⁰ Peminacka in this deed sold also the land from Naaman's Point to Marcus Hook. Ahopameck's sale included the lands denominated Kingessing, Aronimink, Mockorhutting, and Kokarakung. In this sale Ahopameck may have been acting as delegate for the hunting territory owners of his band resident at Passayunk; or may it be instead that we have here a petty sachem, after the fashion of Uncas, asserting his supremacy over the neighboring sachems?

to sign a deed of sale, but that he had refused Printz because the Swedes had been so negligent. He wished now only to donate the land to Stuyvesant, even as his friends several days ago had donated theirs. He therefore presented the land, all of which, he declares, is his property, and always has been, which he can prove by the Indians of the river. This land embraced parts of both the east and the west shores of the river—on the east shore, the area Matit Consingh, which extended from Narraticon's Kill (Raccoon Creek) along the river to Maetzingsingh; on the west shore, the land beginning at "a certain little kill" called Neckatoensing, along the river to Sittoensaing, otherwise called the Minqua's Kill.

In 1654, when Rising, as the new Governor, began to attend to the Indian affairs of the colony and worry over the new Dutch fort built already on the land which Mitatsimint had sold to the Swedes, he held a conference with Peminacka at the close of which the sachem signed a document which at the same time saves the face of the Swedes' claim to priority in the purchase of the land in question and also admits Peminacka's claim to it. In this way the Swedes reasserted and resupported their claim to the land on which the intruders' fort was built!

Peminacka had with him at this conference a friend, the sachem Ahopameck, who acted as witness, and who in the same document sold some of his land lying between the Minqua's Creek and the Meneyakse or Schuylkill. The document reads that "herewith they acknowledged that the purchase which the Swedes before this had contracted with Mitatsimint was firm and legal, so that no one else hereafter could rightfully pretend to it," and goes on to declare that Peminacka had never sold the land to the Dutch but had only orally given his permission for them to build a house there. "Wherefore Peminacka desired to confirm herewith the said purchase, which the Swedes had closed with him as the rightful owner of the said land, *which Mitatsimint had presented to him* before the purchase and before his death. . . ." Signed by Peminacka "as rightful owner," and by Ahopameck, Sinez (?), and Pinnac (?) as witnesses.²¹

²¹ There are no originals extant of the Swedish and Dutch deeds cited above; the copies filed in the Swedish Royal Archives however are, in the opinion of Johnson,

In considering certain details in the complications of these land disputes we must recall the fact that, after the arrival of the whites in the lower Delaware Valley, disease, and the use of fire-arms by the Minqua enemies, had reduced the population—to what extent we can only surmise. Presumably there was an unusual decline in the population of family groups through catastrophes such as war or epidemic, or lack of means of defense or support because of the loss of the able-bodied men, or through absolute extinction, and it might well, in such case, befall that several hunting territories would come into the hands of a single surviving family, or of a family made up of the coalesced fragments of former families. The settlement of the region by the whites, further, must have caused some shifting of the family hunting stations and perhaps of the band headquarters or village. It is to be noted, for instance, that at the first conference between Stuyvesant and Peminacka, Matthehorn, and Sinques, Matthehorn said "that when Minuit came to the country [1638] with a ship, he lay before Minquas Kill, where he, the sachem, then had a house and lived."²² Minuit came in the spring and had found within calling distance of his guns the five sachems, Matthehorn, Mitatsimint (Mitot Scheming), Elupacken, Mahomen, and Chiton.²³ Yet Lindstrom, in 1654, notes as sachems from Passayunk—a village on the Schuylkill at its mouth later to

true copies of originals. In the Library of the Historical Society of Philadelphia are copies made from those in the Swedish Archives, copied in both Swedish and Dutch, along with notes taken at the conferences with Peminacka and the other Indians by Printz and by Rising for the better refutation of Stuyvesant's claims. There are also filed with these in the Library under the uncatalogued Swedish Papers, an English translation of the chapters of Lindstrom's "Geographia" which will be cited subsequently in this paper. The translation is in script. The first testimony of Kotike and Kiapes, and the deed of sale jointly made by Peminacka and Ahopameck are translated in Johnson, *op. cit.*, pp. 755-756. The second testimonial is translated on p. 757. The notes of Printz and of Rising are attached to these documents in the Library collection mentioned. These are cited by Johnson, p. 441. The maneuvers of Stuyvesant are discussed by Johnson, pp. 443-448. The documents covering the Stuyvesant negotiations as here cited are printed in O'Callaghan, *op. cit.*, vol. I, pp. 597-599. (The italics of this paper are not in the originals.)

²² O'Callaghan, *op. cit.*, p. 596.

²³ Hazard, "Annals of Pennsylvania," p. 126.

give its name to a section of Philadelphia—Peminacka, and Ahopamen (Ahopameck?) and his brother Quirocus.

Passayunk in 1654 had become headquarters of the most important band of families on the lower or Swedish section of the river Delaware. Lindstrom speaks of "Passayung, where the most distinguished sackimen, i.e., chiefs, rulers, now live." In the general conference of July, 1654, with "the chiefs of our own river Indians," the Indians, Lindstrom says, reported that "the most of their people lived at Passayunk." In his description of the river Lindstrom stresses the dominant importance of the Indian communities located in the section where the present Philadelphia now is. He says that "from Wickquakonick [Wec-cacoe] all the way to Nittabaconk, situated at the Falls of the river Meneyakse [the Schuylkill] the country is very fine.... This is inhabited by the most powerful and intelligent Indians which own this river."²⁴ There they have built their dwellings side by side, close together, through these means as also through clearing and cultivating the land they have become strong and powerful. *There are six different settlements, under six sackimen or chiefs, each one commanding his tribe or people under him. There are several hundred men, women, or children under each chief; some have more, some less.* Each tribe has its own peculiar language. Thus, Poaëtquessing, Penikpacka, Wickquakoing, are situated on the larger river [Delaware], but Passayung and Nittabakonck on the Meneyakse River. Each of the chiefs is named after his own country." He observes, on the other hand, that "from Sandhocken downwards to Cape Hinlopen, on the west side of the river [Delaware] the soil is very good and fertile, but not occupied, neither by Swedes nor by Indians."²⁵

That the village of these Indians was the common headquarters of several families each of which possessed its private

²⁴ Lindstrom certainly means by "this river," the Delaware. He was not concerned particularly with the Schuylkill. And we know from the documents which have been referred to for the purposes of this paper that the family heads dwelling at the region of these six villages, notably Passayunk, owned most of the territories reaching down the river side on the west side to Sandhocken, which, in 1654, was virtually unpopulated, or depopulated, as the case may be.

²⁵ Lindstrom, "Geographia Americana," translation in Library of the Historical Society of Philadelphia, pp. 36-45.

hunting grounds elsewhere—though perhaps, as indicated by Lindstrom, acknowledging the common political headship of one among them, entrusted by them no doubt with important matters common to the whole band—is illustrated for us with some clearness by the general description offered by William Penn in 1682, referring to the Indians in the neighborhood of what became Philadelphia. He says, “every king hath his council, and that consists of all the old and wise people of his nation which perhaps is two hundred people; nothing of moment is undertaken, be it war, peace, the selling of land, or traffick, without advising with them, and which is more, with the young men too.” Penn goes on to describe a negotiation with such an organized village group for the purchase of their lands. The whole village of two hundred or more is ranged in a semicircle according to their age and rank, the official orator speaking for the chief of the band. The orator makes excuses to the white man for the slowness of procedure in Indian councils, for the chief, saying, “and that if the young people *and owners of the land* had been so ready as he, I [Penn] had not met with so much delay.”²⁶

The family hunting territory was not characteristic alone of the Delaware Indians of the Philadelphia villages, but apparently was characteristic of all the peoples living in the Delaware River region, up to the Hudson River where contact is made with the distinctively New England culture. Out of the available material I will select two examples which, more than any others, serve to uncover the facts.

William Markham, in 1682, made, for William Penn, the first purchase of land from the lower Delaware tribes—lands near Neshaminy, Bucks County, Pennsylvania. Among the twelve sachems noted as signing the deed, Schoppe signs for Ocomickon as well as for himself, Ocomickon apparently being unable to appear; and Oreckton signs merely as representative of the sachem Nannacussey. That the sachems are signing not as political delegates of a tribal council but in their own right

²⁶ “Letters from Wm. Penn to the Committee of the Free Society of Traders, 1683,” in *Narratives of Early Pennsylvania*, ed. by A. C. Meyers, p. 235, (in the series, *Orig. Narr's of Early Amer. History*).

as private land owners is indicated by the note later appended to the deed, a memo added two weeks later, which says: "Pecerap-pamand, Peterhy, and Elkpamachitte, Indian Sachamackers, who were the right owners of the land called Soepassinks, and of the island of the same name, and who did not formerly sign and seal the within deed, nor were present when the same was done, now confirm the proceedings."²⁷

The absence of any pooling of their land interests in the form of a tribal control of family heads is indicated in the account by Hudde of a purchase made by him on the west shore of the Delaware somewhat above the Philadelphia area: "And whereas, on the seventh day of September [1646] following, a letter was handed to me [from Stuyvesant] by which I was strictly ordered to buy some lands from the Indians lying on the west shore, distant about one league to the north of Ft. Nassau, I took possession of the place on the eighth, erecting the arms of the Hon. Company, and as *the owner was absent hunting* I had to wait with the purchase until the twenty-fifth of the same month. Having concluded the purchase the proprietor came with me in person and the Hon. Company's arms being fixed to a pole, this was set in the ground on the extreme boundary."²⁸

The sale of Staten Island by its Indian owners is significant, giving us notes on the making of the sale as well as the mere deed. Before the English Governor [Lovelace] and Council, on April 7, 1670, appeared the Indians "who pretend an interest in Staten Island." They are asked how they can "make it appear" that they are the owners of Staten Island. They answer that there are five "principal owners," and that the rest [of the group present before the council] are but friends of the owners. "It was demanded what the first owner's name is, they having marked out several divisions [on the map] beginning at the south." They reply that the owners [of the respective divisions] are Metackos,

²⁷ The deed, and its duplicate, which contains the memo, are given in Hazard, op. cit., p. 581. Copies of the originals are in the Secretary of State's office in Harrisburg. For further abundant and conclusive evidence for this region the reader is referred to the documents in the Pennsylvania Archives, vol. 1, where the deeds cover sales from 1683 to 1685, and record the sale of Tammanend's "parcel" or hunting territory.

²⁸ In O'Callaghan, op. cit., vol. 13, p. 452.

a boy, "he was at Staten Island"; Karasamint, "he hath entrusted some here"; Matarus, "he will come tomorrow"; Craoquy, "he is almost dead, so cannot come; he is of Rockaway (Long Island), some of his friends will be here tomorrow"; and Wenonecameke, of Staten Island. Three owners, it appears, are residents of Staten Island; the other two were residents of the adjacent coasts.

The Indians were then asked "if these beforenamed are the right proprietors," and they answer that they are and can substantiate the claim, and that "*the two ancient men who speak for the rest do not pretend to any interest in the island but are only entrusted by the rest whom they know to be proprietors.*"

A deed for the island had been made and signed forty years before, the sale embracing the whole island, during the Dutch occupancy; but the Indians insisted that only a part had been sold. The names of the signers of the old deed were read. The Indians were asked if at the time when the old deed was made they lived on the island, and they replied "yes." Some of the signers of another document, of 1657, which is found, and the names on it read, the Indians say are dead, but add that "these now claiming are descendants from them."

When the dispute is finally settled, the document liquidating all Indian claims to the island, there are seven signers instead of five. One of the additional names is that of Warriner, who was called for but declined to come, saying that "he hath played away all his interest in Staten Island"; another, however, is appointed to sign for him, the English probably being desirous to avoid the possibility of further disputes. Another sachem is admitted to sign also, for no reason given in the minutes; but he had been one of the signers of the deed to the Dutch, and it was perhaps thought better to have the signatures of all who might in the future suddenly become claimants. The English were so anxious to have an unchallengeable deed that they obtained the signatures of a number of Indian children that in the remote future there would be living Indians who could be called upon to recall the proceedings.²⁹

²⁹ O'Callaghan, op. cit., vol. 13, p. 452; cf. Bolton: "New York City in Indian Possession," Heye Museum, N. Y., 1920.

In conclusion we may observe how early and how close was the pressure of the Iroquoian tribes on the Lenápe of the lower Delaware to whom we have given our principal consideration.

It was at the first conference with Stuyvesant in 1651 that Matthehorn said that he and the other river sachems were "great chiefs and proprietors" of their territories "both by ownership and by descent and by appointment of the Minquas and River Indians, wherefore they had power to sell and make over the lands . . ."³⁰

In 1630, several chiefs appeared before the Dutch at Manhattan—Ensanques (Sinques?), Sickonesyns (Siconesius) (Chiton?), and Quesquakons—and sold the land from Cape Henlopen up to the mouth of the Delaware River, on the west side, and toward the interior two miles, "to a certain valley or marsh through which these bounds can be sufficiently distinguished."³¹

But in the conference at which, in 1651, Matthehorn and the two other sachems donated their lands to Stuyvesant the witnesses to the document were four Minqua chiefs—Jonnay, Tonnahoon, Pimadaase, and Cannowa Rocquaes—and the territory is described as "reaching inland as far as our right extends, to wit, the bounds and limits of the Minqua's country. . . ."³² The document was made and signed at Camecouck (Tamekonk) where lived some Dutch settlers who, conceivably, the Minquas might have come to see in the way of trade. These Minquas, however, are designated as sachems. "Sachem" among the Dutch was apparently applied as a designation to any family or band head. "Sachem" among the Iroquois of course could only refer to the representative of a matriarchal family elected to perform political functions. Whether these Minquas were really sachems or not, and whether they had arrived to supervise the sale of Delaware land, assuming an hegemony over the river Indians, or not, we can only surmise. Perhaps the hesitancy of the Delawares concerned in this sale, delaying ten days between the two conferences, at the second of which they finally signed a written document, may have had some relation to the presence of Minqua sachems at the second conference.

³⁰ Vide p. 454 supra.

³¹ O'Callaghan, *op. cit.*, vol. 1, p. 599.

³² Vide, p. 454 supra.

From the reference by Mattehorm at the first conference to "appointment by the Minquas and River Indians," we can draw nothing save that the Minquas were asserting their supremacy over the Delaware, and that the concept, though as far as the evidence of land sales goes not the practice, of a centralization of political power as conceived of in Iroquoian life was being carried to the Delawares.

But with the crushing of the White Minquas (Susquehannocks) by the Five Nations, the hegemony of the Susquehanna tribes became the hegemony of Onandaga; and finally we reach the day when the cold schemer Cannassetego ordered the Delawares to remove to central Pennsylvania where they would be under strict control of the Five Nations, and the tragic retreat westward of the Delawares began, during which, as guests of foreign tribes, on lands not their own, they apparently lost the fundamental institution of their former social and economic life.

In conclusion, by way of retrospect, we may sum up the features of the hunting territory among the Delawares as indicated by our data. . . . The ownership rested exclusively in the hands of a family of kindred through blood and marriage; the widow of a deceased family head as well as his children having rights in the family inheritance. The head of the family transacted business relative to the family territory. The family was sovereign over its own territory, and could sell it,³³ give it away, or give or rent the privilege of hunting upon it to outsiders. Each territory was possessed of definite bounds separating it from the contiguous territories of other families, and each was possessed of a distinctive place name of its own. The data at least suggest further that related families possessed contiguous hunting territories, and for agricultural purposes resided together in a village which was the headquarters of a band of families. In this band, or village, there was a chief, presumably some one family head, who was accorded a nominal headship over the other heads of families, his position implying preëminent influence.

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³³ The selling of land of course was a notion foreign, so far as we know, to native ideas or practice before the advent of the whites; but the new practice was assimilated to the different cultural complexes of the various tribes.

BOOK REVIEWS

METHODS AND PRINCIPLES

Is America Safe for Democracy? WILLIAM McDUGALL. New York: Scribner's, 1921, 218 pp.

This is a pro-Eugenics book, and an astounding one from the author of the *Introduction to Social Psychology* and co-author of *The Pagan Tribes of Borneo*. Quoted excerpts best convey its drift and method.

I would especially draw the attention of readers interested in political, economic, or social science to the evidence cited in this volume which indicates very strongly, if it does not finally prove, that the social stratification which exists in modern industrial communities is positively correlated with a corresponding stratification of innate moral and intellectual quality, or, in less technical language, that the upper social strata, as compared with the lower, contain a larger proportion of persons of superior natural endowments. (p. vii.)

We must have some understanding of the causes of the rise and fall of the curve of civilization. The answers that have been suggested fall into two main classes: first, the answer implied by the economic interpretation of history; secondly, the anthropological answer. (p. 7.)

My thesis is that the anthropological theory is the true one, *that the great condition of the decline of any civilization is the inadequacy of the qualities of the people who are the bearers of it.* (p. 12.)

Here, then, is the anthropological theory of the decline of peoples:

Every human being, and therefore every community of human beings, every populace, inherits from its ancestry a stock of innate qualities which enable it to enjoy, to sustain, to promote, a civilization of a certain degree of complexity. (p. 17.)

It is this mental anthropology which is so difficult a study that it has only quite recently begun to take shape as a science, the science we call modern psychology. . . Especially as regards the innate basis of the human mind, we still have little light and much difference of opinion. Yet only knowledge of the innate basis of the mind will enable us to arrive at well-founded views, in the face of the great problems of the rise and fall of nations. (pp. 18-19.)

The colored men of the Northern States showed distinct superiority to those of the South, in respect of their performance in the army intelligence-tests. Have they not a larger proportion of white blood? I do not know, but I suspect it. (p. 54.)

We have, then, pretty good evidence that the capacity for intellectual growth is inborn in different degrees, that it is hereditary, and also that it is closely correlated with social status. (p. 66.)

The Nordic race, then, is more curious and less sociable than the Mediterranean. In it the instinct of curiosity is stronger, the herd instinct is weaker. (p. 83.)

We may fairly complete our hypothesis by assuming that the Mediterranean race is constitutionally extrovert, the Nordic race constitutionally introvert. (p. 87.)

Just as that peculiarity which enables a man to become a great mathematician (or a great musician) is certainly innate and hereditary, though we cannot define or conceive in what this hereditary basis consists; so also the development of the highest moral character only proceeds upon the basis of a hitherto undefined innate and hereditary peculiarity. (p. 133.)

We do not know the ethnic composition of the people which produced that [Greek] civilization. It is still a matter of dispute. But we do know that the present population of Greece is in the main of different stock. And history shows that the change or substitution of population took place about the time of the decay of that civilization. (p. 169.)

It is probably impossible at present to write a wholly objective book on the worth of races and strains, and therefore also impossible to pass objective judgment on one. Hence the quotations: though even the selection of these is open to the imputation of bias. Instead of summarizing an evaluation of the volume, the reviewer will therefore express what seemed its outstanding virtue and fault. The virtue is an unusual open-mindedness and courage. No problem is shrunk from; no view pushed aside because it is scientifically unfashionable or heterodox; insufficiency of evidence is fully admitted. The fault is an insistence on driving incomplete evidence to conclusions, which therefore seem affectively predetermined. What is needed for scientific progress on the great problems of race values is not the utilization of admittedly imperfect evidence to reach some verdict—which every man on the street already has—but a critical examination of the gaps, their causes, and the means of satisfactorily filling them; and then the labor of producing new evidence that is worth more.

A. L. KROEBER

Instinct and the Unconscious. W. H. R. RIVERS. Cambridge: University Press, 1920, 252 pp.; second edition, 1922, 277 pp.

While the sub-title to this volume describes it as a contribution to a biological theory of the psycho-neuroses, the author has really

built up a wider system of hypotheses in regard to psycho-physical processes, several of which enter rather directly into social phenomena. The "all-or-none" principle of nervous reaction, and the distinction between protopathic and epicritic functioning, are skilfully interwoven with the concepts of the unconscious, suppression, and suggestion, and with an analysis of instinct. Witting repression and imitation are distinguished from unwitting suppression and "mimesis." The one illustration chosen from the ethnological field, concerning intuition among Melanesians, will probably seem psychologically dubious to most ethnologists. But the book is wide in perspective, keen in definition, and will be important to anthropologists for its bearing on the foundations of their subject.

A. L. KROEBER

AMERICA

Indian Houses of Puget Sound. T. T. WATERMAN and RUTH GREINER. Indian Notes and Monographs, 1921, 61 pp.

Native Houses of Western North America. T. T. WATERMAN and Collaborators. Ibid., 1921, 97 pp.

Types of Canoes on Puget Sound. T. T. WATERMAN and GERALDINE COFFIN. Ibid., 1920, 43 pp.

The Whaling Equipment of the Makah Indians. T. T. WATERMAN. University of Washington Publications in Political and Social Science, 1920, vol. 1, no. 1, pp. 1-67.

These papers constitute an addition to the knowledge of northwest American material culture, together with a profitable review of several of its phases and some clear interpretations. The two monographs on houses discuss the types and distribution of pit and earth-roofed structures, making almost certain the single origin of the style in North America, although its importation from Asia seems only probable. On the immediate northwest coast this type of house may have prevailed also, but it became superseded by the gabled plank house. In the middle of the coast strip, however, about the Strait of Juan de Fuca, the gabled house was in turn replaced by one of shed type, less well made but attaining to enormous proportions.

In regard to canoes, the conclusion is reached that the shovel-nosed type is the earliest on the North Pacific coast, and was devised for use on inland waters.

Descriptions throughout the papers are vivid, the cuts are clear; tabular résumés of data are given, as well as full references to the literature. In native terms, a capital delta is used to denote the obscure vowel. This may prove a convenient orthographic device when the character is reduced to less conspicuous size. The three papers in the Notes and Monographs series preserve the accustomed editorial standard of the Museum of the American Indian, Heye Foundation. The fourth, on whaling—an exact, valuable, and unusually readable treatise in a somewhat garbled dress, typographically—is welcome as the initial number of a new series open to anthropological research.

A. L. KROEBER

Die Kultur der Kalifornischen Indianer. FRITZ KRAUSE. Leipzig: Institut für Völkerkunde, series 1, volume 4, 1921, 98 pp., 14 pl.

It is as stimulating as rare for the specialist to encounter an intensive contribution to his own field, made independently and at a distance, and bringing fresh attitudes to bear on matters which he is in danger of thinking about in the grooves of habit rather than spontaneously. Dr. Krause's study of California Indian culture is such a happy event; carried out under the double difficulties of lack of personal contact with the area, and apparent unavailability of nearly all the literature issued upon it since the outbreak of the war; but searching, well balanced, and productive of new conclusions—altogether a profitable undertaking.

After an introduction disposing of method, the monograph considers in turn the houses, food, and social organization of the Californian groups, and then the "primitiveness," that is, the sources, of their culture. The house types are referred mainly to northern sources. Food methods the author seems at first inclined to regard as determined from the agricultural area—which may be truer than has generally been assumed; but he finally decides on a preponderance of northern influences.

As the basis of American society he posits the family, that is, the body of blood relatives, which is capable of variable development according to accentuation of kinship, cult, ownership of land, or co-residence. In California the last factor led to organization on the basis primarily of village communities. This organization evinces some tendencies toward clan-gens formations. Out of a similar culture stratum, in Mexico or beyond, there may have originated

the clan-gens type of organization. Or, more likely still, gentile society grew up there in association with maize and totemism, and, on flowing northward, exerted some influences in California. In any event, the substantially common or closely correlated origin of patrilinear gentes and matrilinear clans seems implied.

In the final section, Californian culture is characterized as mainly of early type, with certain characteristic local developments, plus some extraneous influences, especially from the north and north-west.

Specific Southwestern influences in southern California seem to the reviewer to have been underweighted by Dr. Krause: Haeberlin's essay on Fertilization illustrates the importance of the connections. For central California, and the state at large, one must appreciate the force of the numerous parallels brought by the author for non-agricultural North America at large. In this country we have perhaps slipped into the habit of unduly restricting comparisons to neighboring culture areas, such as between California and the Plateau. The strong North Pacific Coast influences determined by Dr. Krause in northern and especially northwestern California agree with the findings of every one who has concerned himself with this region. His linking of the Santa Barbara culture to the same influences seems much more dubious. Yet the origin of this Chumash culture is far from clear. If its specific traits are on the whole locally evolved, as the reviewer is inclined to believe, their development needs elucidation. Archaeology may yet help; and in any event, an intensive analysis of the culture would unquestionably be illuminating.

A few corrections are in order at special points on which the student without field experience is almost certain to be misled by Powers's journalistic habits, or by ambiguities of more modern ethnologists of whom the reviewer is one. Pl. 1, fig. 1 shows the normal house of the Yurok and Karok as well as the Hupa; fig. 2 is the poor man's house; and pl. 2, fig. 3 the sweat-house of all three groups. Pl. 2, fig. 2 is only an error in drawing. The sweat-house of the northwestern tribes proper was never earth-covered. The Chimariko house is too vaguely known to support important inferences. The account available was obtained from one or two senile individuals whose native culture had been effaced since their youth. Their descriptions may have been meant to refer to a rudier bark form of the Hupa dwelling; a gabled roof over an oval pit seems inherently unlikely. The Cahuilla house, pl. 1, fig. 3, may or

may not be native. Spanish peon influence is possible. The Luisefio, Yuma, Mohave, as well as Diegueño, built earth-covered houses. The author's typological classification and genetic relating of Californian and American house types is not wholly convincing, though the reviewer has no scheme to advocate as better. The problem is difficult because shape, skeleton structure, and materials vary independently and it is not clear how their respective significance is to be rated.

It would be of value to American anthropologists if Dr. Krause should undertake a similar analysis of some better known culture of the continent, that of the Southwest or Northwest Coast, for instance. His fundamental assumptions and method are close to those of most students in this country, whereas the independence of his approach in particulars is productive of novel formulations.

A. L. KROEBER

The Copper and Bronze Ages in South America. ERLAND NORDENSKIÖLD. Comparative Ethnographical Studies, IV. Göteborg, 1921, 196 pp.

This work maintains the high standard set by its predecessors in the series by the same author. It deals with copper and bronze objects described in the early literature as in use in the Inca empire; those depicted by natives on pottery, etc.; those whose age can be determined by circumstances of their discovery; international and local types, and their sequence; an account of the Andean sites and types in which copper and bronze respectively prevail; the purposes and manner of admixture of tin; ores available and used; and the origin of the Copper and Bronze ages. Existing evidence is fully reviewed, and new analyses and experiments are contributed. The illustrations are simple but sufficient for the purpose, numerous, excellently arranged, and accompanied by figures giving the tin content. The author's procedure is thoroughly sound; conclusions are invariably within the limits of the evidence; if anything he is ultra-conservative in his inferences.

Among the principal findings established or confirmed are the following. Bronze originated in Bolivia, probably as an independent invention. It seems to have been preceded there by a copper period, though this remains to be determined. On the Peruvian Coast and in Ecuador, the old local cultures used copper, sometimes copper

tempered with arsenic. Types characteristic of these areas, such as round tweezers and broad-shafted tumi knives, are generally devoid of tin. The types known also in the Inca region, such as triangular tweezers and slender-shafted knives, are generally of bronze even when the objects were found in the coastal or northern areas. The Incas helped to spread forms as well as bronze. Both copper and bronze were hardened by hammering, a process that for tools had some advantages over increasing the tin content, and would yield almost equal edges. Both in Peru and Argentina there is need for description of the forms and composition of metal objects found in positive association with pottery whose type or period is determinable.

Nordenskiöld's studies combine accuracy with broad outlook to so unusual a degree as to render them fundamental in the development of the culture history of native South America. They are models of scientific method.

A. L. KROEBER

OCEANIA

Proverbial Sayings of the Tongans. E. E. V. COLLOCOTT and JOHN HAVEA. Occasional Papers of the Bernice Pauahi Bishop Museum of Polynesian Ethnology and Natural History, vol. VIII, no. 3, pp. 1-154, 1922.

The six hundred and thirty-three proverbial sayings marshalled between the covers of this paper afford an excellent example of the results which can be attained by careful and intensive work even among aborigines who for seventy years have been thoroughly Christianized. Fortunately for the enterprise, the European co-author has been in intimate contact with Tongans for several years and the Tongan co-author is one of the most progressive scholars of his nation.

The authors introduce their subject with a number of brief sections dealing with Tongan geography, the vexed question of orthography, selection of material, method of treatment, Tongan oratory, division of material, and lastly acknowledgments.

The method of presentation and the division of material can not be improved upon. Each proverb is numbered for reference. It is given first in Tongan, then in pithy English, which, however, adheres to Tongan idiom so far as possible, yet not to such an extent

as to render the English ungrammatical and unintelligible. The proverbs are grouped under a series of headings which are worthy of listing as they make clear the importance of proverbs as a feature of Tongan culture. The headings are as follows: garden and farm; plants and trees; food (preparation; eating and drinking; presenting, begging, keeping food); doing of tasks, criticism; manufactures (cloth [tapa]; other manufactures); land creatures; birds; fish; fishing; shell-fish and shell-fishing; ships and sailing; climate and seasons; sea and coast; natural features of land; geographic locations; distinguished persons; legendary deities; religion; the person (clothing and adornment; facial expression and gestures; personal appearance; physical defects; miscellaneous); home and compound; domestic relations (mother and child; adoption of children; miscellaneous); courtship and marriage; speech, boasting, jesting; disease and medicine; death and burial; wrong-doing; retribution; common people; chiefs; the Tui Kanokupolu; the Tui Tonga; kava; war; sports and games (lafo; heu lupe [pigeon snaring]; boxing, wrestling, cudgel play; velo fa and jika [dart throwing], fanifo [surf riding]; miscellaneous); dancing; unclassified proverbs.

Under the heading "Division of Material" the authors mention a classified table of contents which unfortunately nowhere appears. Such a table of contents would have rounded out and given finish to an excellent body of material.

The authors have committed one sin of omission, not a serious one, however. They were in a position to write a brief account of Tongan ethics on the basis of the proverbs and of their intimate knowledge of the Tongan people. Such an interpretation might well have been accompanied by a classification of the proverbs on an ethical basis, a classification which would have been without doubt a worthy complement of the authors' careful cultural grouping of the proverbs.

E. W. GIFFORD

A Contribution to Tongan Somatology. LOUIS R. SULLIVAN. Memoirs of the Bernice Pauahi Bishop Museum, vol. VIII, no. 4. Honolulu, 1922. 27 pp.

Until the recent publication by Doctor Sullivan of his admirable paper on Samoan somatology, there did not exist a single study of significant value on any living Polynesian people. In this second

paper, dealing with the population of Tonga, we have an equally admirable monograph on the people of a neighboring group.

The data, collected by E. W. Gifford and W. C. McKern, comprises measurements and descriptions of two hundred and twenty-five persons, a number sufficiently large to render the conclusions of real value. The metric and descriptive material is presented in a series of tables, giving for each measurement or index a seriation, and for the descriptive characters the percentage of individuals in each class. It seems unfortunate that, in the seriation tables, only absolute numbers are given, since the reduction of these to percentages is necessary if the Tongan data are to be compared with those from any other Polynesian or extra-Polynesian group.

The general result of the tabulations and averages is to show that the Tongans are extremely tall, and in head-form just on the margin between brachycephaly and mesocephaly. Older crania show much higher indices, due to artificial deformation. The face and nose are in absolute measurement large, the former being leptoprosope, the latter mesorrhine. The skin is of a medium yellow-brown; the hair black and either straight or slightly wavy; the eyes are dark brown, and, although the Mongoloid fold is generally absent, a few marked examples were noted.

Comparing the Tongan data with those previously published in regard to Samoa, Doctor Sullivan finds that the Tongans are less homogeneous than the Samoans, but nevertheless, on the basis of averages, the two peoples are in very close correspondence. The differences observed point to a slight Melanesian factor among the Tongans, and this Melanesian intermixture seems to have been recent. In treating of the wider relationships of the Tongans, Doctor Sullivan regards them, as in the previous publication he did the Samoans, as primarily of Mongoloid or Yellow-Brown affinities, and finds the supposed Caucasian elements to be slight and unconvincing. From the still broader point of view, he finds the Polynesians, as represented at least by the Tongans and Samoans, closer to the American Indian than either is to the Chinese.

If a word of criticism may be added, I believe it is unfortunate that in a monographic study of this sort, which must long stand as the fundamental work on the physical characters of an important Polynesian people, the individual measurements and descriptions are not given. The added cost of publication would of course be large, but the advantage to the student would be very great, and the

expense of making all the data available should be regarded as just as much a part of the cost of the expedition which obtains them as are the salaries and expenses of its members.

It would have been interesting had Doctor Sullivan added to his treatment of the Tongans as a whole some discussion of such differences as were apparent in different parts of the group, and as between different classes in the community. It would seem probable that such differences do exist, and that they may be extremely significant. The published cranial materials from Hawaii and New Zealand show striking geographical variations and here, on the extreme western border of Polynesia in the vicinity of Melanesia, one might expect that they would be found also. It has long been assumed that the population of Polynesia was substantially uniform, but when, if ever, full and adequate data are available, not only for each group but for individual islands and districts, I believe that the complexity of the peoples of this great area will be clearly demonstrated.

R. B. DIXON

MISCELLANEOUS

Principles of Social Psychology. JAMES MICKEL WILLIAMS. New York: Alfred A. Knopf, 1922. xii, 459 pp. \$5.00.

The term *social psychology* first came into general use through the publication of Professor E. A. Ross's *Social Psychology* in June, 1908, and Professor William McDougall's *Introduction to Social Psychology* in October, 1908. The phrase seems to have filled a need, for since then it has become an accepted part of our vocabulary, and there is a strong popular demand for books and articles dealing with social psychology. Professor McDougall's book, which is now in its seventeenth edition, added greatly to the popularization of the subject.

These two books are quite different. There is almost no overlapping of contents. Professor Ross deals with suggestion, imitation, fashion, mob action, leadership, social control, and such types of collective social activity. Professor McDougall is concerned primarily with the whole field of instincts and how they determine behavior in society. Around these two quite different centers many social and psychological phenomena have been grouped. The writings of a large number of investigators can also be assigned with more or less justice to these two classifications.

From these two groupings of differing materials it is clear that there is a lack of agreement as to the field of the new science of social psychology. This is due in part to its youth. In laying out the field of a study at an early stage of its development two aspects are usually considered. One is a prediction based more or less on theoretical or logical relationships and developments; the other is the existing practice.

While practice tends to group certain materials of social psychology around the instincts on the one hand and around collective psychological behavior on the other, there is a growing tendency to include other researches under the title. This tendency is expected to grow.

For half a century or more before the rise of social psychology there had been much discussion of the relation of psychology to the various social sciences, particularly to sociology, economics, political science, and to some extent, history and law. These discussions have waned somewhat during the twentieth century, but there were left certain fairly well-classified analyses which should be considered as contributions to social psychology.

During the twentieth century the ethnologists and culture historians have carried on a discussion of the relationship of psychology to ethnology and culture. There is some lack of agreement as to what this relationship is or should be, but these discussions have resulted in a few very nicely chiseled and very important conceptions.

Recent developments in abnormal psychology, particularly the psychoanalytic schools, have uncovered and emphasized a number of mechanisms of behavior which are largely unconscious. These mechanisms have been little noticed by orthodox psychology, although their importance for the study of behavior seems to be great. Already there have been made many applications of these ideas to society and culture. They are sometimes thought of, and correctly so, as contributions to social psychology. One phase of this development is the very practical question of the repression of desire and of adaptation to environment.

So some half dozen streams of more or less different interests therefore appear to be contributing to the subject of social psychology. But at the moment the divergences are great. It is conceivable that investigation might show in colleges and universities three, four, or even five different courses on social psychology, with practically no overlapping of subject-matter.

With social psychology still in the formative stage of development and with such divergent treatment of the relationship of psychology and sociology, a book carrying the title *Principles of Social Psychology* naturally arouses interest. One wonders what the principles are. We expect to find a formulation such as one meets in a *Principles of Economics* or a *Principles of Psychology*.

Dr. Williams does not, however, present such an organization of principles. In reviewing a book much depends upon what plane or by what set of standards the book is to be appreciated. I think it is a mistake to review Dr. Williams's book as an organization of existing knowledge of phenomena comprising both psychology and sociology.

The book is rather a series of comments on certain present-day social institutions, namely, industrial organizations, including factories, labor, capital, management; political organization, with special emphasis on party politics and leadership; the professions, comprising law, dentistry, medicine, and architecture; the family, particularly the attitude of husband, wife, and children toward one another; and certain educational and cultural activities as found in the public schools and colleges and in the church.

These various modern social institutions are not treated historically, nor described as institutions. The method is to single out interesting types of activity found in them and to discuss in non-technical language the motives involved.

Ethnologists have had abundant experience with psychological interpretations of institutions, to most of which they look back with little pride. Totemism, exogamy, the clan, ancestor worship, taboos, rituals, marriage, and many other phenomena of primitive culture have been explained again and again in terms of motives—and usually wrongly. Out of all this has risen the culture historian who insists on a full history before attempting to set forth any psychological factors.

Dr. Williams seems not to have profited much from the ethnologists, for he discusses motives easily and somewhat continuously without much history or cultural description. He has come out remarkably well, however, despite faulty method. Perhaps his method is not so faulty, that is, not so lacking in history as appears from the book, for his historical observation may have been made and not included in the book. Concerning modern social phenomena, there is in our general knowledge much fact and history, which in the case of a social scientist becomes extended during a life-time of

study and observation. Consequently one may write much of psychological factors and motives without setting forth the historical and observational bases.

Still, there are occasions where the psychological factor might have been seen by the author more clearly and with greater accuracy through more attention to history. For instance, he gives the impression that strikes are caused by a breaking out of resentment due to repression. This seems hardly compatible with the fact that there are more strikes in periods of prosperity than during business depression, when the repression of the working man is much greater. Similarly, the author explains the business cycle as due to impulsive profit-seeking; but two hundred years ago there was no business cycle, and yet there was impulsive selfishness.

On the whole, however, the unsophisticated reader will probably get from the book a pretty good idea of many of the major motives in the functioning of present-day social institutions. The author seems particularly interested in singling out such tendencies as rivalry, egoism, and domination, and contrasting them with sympathy, altruism, and intellectual attitudes. Here he is concerned with values. Of the motives in this conflict he values most highly the sympathetic altruistic group, and he thinks that education may do much to lessen the evil influence of selfishness.

So, it is thought, Dr. Williams's book should not be judged as a comprehensive account of the various streams of thought that now go under the term *social psychology*, which one naturally thinks of as the materials for a *Principles of Social Psychology*. As an interesting account of certain important motives operating in our institutional life, his work deserves praise.

WILLIAM F. OGBURN

The Witch-Cult in Western Europe: A Study in Anthropology.

MARGARET ALICE MURRAY. Oxford University Press, 1921.

In this recently published book, Miss Murray has presented a survey of the belief in witchcraft as it developed on the continent and in England during the fifteenth, sixteenth, and seventeenth centuries. She has treated the subject in an entirely novel fashion, for while the consensus of opinion among modern scientists, such as Alfred Lehman and William Sumner, has been to consider the belief in witchcraft as due to hysteria and suggestion, Miss Murray considers the witches to have been members of a secret religious cult, organized in opposition to Christianity.

This personal bias of Miss Murray's lends an interesting touch to what would otherwise be dull and somewhat Rabelaisian material. Unfortunately, however, this opinion of the author is altogether lacking in scientific foundation or caution. The basis of the writer's persuasion on this subject must be sought in a naïve desire for originality combined with an over-facile intuition. Perhaps something of her frame of mind in composing the book may be gleaned from the statement in which she decries "the unfortunate belief of modern writers in the capacity of women for hysteria." Surely, the present volume presents ample proofs of hysteria both in the past and in the present.

The belief in witchcraft was not confined to the civilized people of mediaeval times, as the present writer would lead us to suppose. It is rather a superstition often found among primitive peoples and intimately bound up with the life of the savage. Miss Kingsley writes that more deaths were caused by the persecution of witches in West Africa than by the entire slave trade. In this region, as elsewhere, most of the mortality, as well as plagues and blighted crops, were thought to be caused by witches. Hence, the accusation and the execution of witches were well-nigh simultaneous. It is hardly conceivable that Miss Murray would care to argue that certain West African Negroes belonged to a witch cult which was drawn up in opposition to the organized fetish religion of the locality.

If now we consider the practices of which the unfortunate victims of fanaticism in Western Europe were falsely accused, it can readily be ascertained that certain of these were of early origin, and had in fact been in vogue among primitive people, while others were entirely drawn from the realms of a popular distorted imagination. A third class were merely inversions of orthodox Christian ceremonials. Miss Murray has displayed the most fantastic lack of discrimination in her evaluation of the validity of the court testimony given at the witch trials. She has attached equal significance to the accusations that the accused rode on broomsticks, ate children, had sexual intercourse with the devil, turned away from Christianity, kept "fetish" animals, and similar misdemeanors.

Sumner has clearly pointed out that no importance whatsoever should be attached to the fact that the accused people freely confessed their complicity in these crimes, for the belief in witchcraft was the popular philosophy of the times. Certain women evidently desired to be witches. Hysterical women,¹ for example, courted the

¹ The frequent presence of local anaesthesia and supernumerary nipples on the witches gives some light as to their mental instability.

notoriety and power, and loved the consciousness of causing fear, in spite of the risk attached. Many perfectly sound-minded and innocent women could not be sure that they were not witches. They had dreams suggested by the popular notions, or had suffered from nervous affections which fell in with the popular superstitions.

There is, however, a certain amount of anthropological interest to be obtained from the various beliefs centered around the mediaeval witchcraft delusion. Thus cannibalism, human sacrifice, and the eating of the man-god are primitive ceremonials. It is not to be believed, however, that the civilized people of Europe ever practised these customs. Nevertheless, it is not unusual to accuse unpopular personages of such offenses. Thus the Jews of Russia, as well as the so-called witches, have constantly been under the accusation of child-eating. Riding on broomsticks, the possession of familiar spirits, the power to blight crops and injure animals and people, the carnal intercourse with demons, are beliefs of varying antiquity. None of them have ever been founded on the remotest facts, yet some of them are still accepted as truths by the ignorant masses of Europe today.

The third variety of witchcraft ritual, as mentioned above, may be classed under the inverted Christianity heading. Thus the Witches' Sabbath, the homage to the devil, the use of urine as a substitute for holy water, the peculiar burning of candles, and the still more peculiar partaking of the Devil's sacrament; what are these customs but a mockery of the Christian ritual? Why should Miss Murray seek to refer these rites back to paganism when their true explanation is so apparent?

It would be needless to discuss further the bewildering mass of false inferences which Miss Murray has extracted from her material. If, on the one hand, it may startle the casual reader to be told that the devil had intercourse with his worshippers by means of artificial phalli, this blunder pales in comparison with the author's later presumption in accusing Joan of Arc of actual witchcraft. Truly, if history is to receive any benefit from anthropology, as it well may, books of the present nature cannot be regarded as furthering the interest of such a movement.

It may be that the present book has a certain amount of scientific value inasfar as it has organized and presented the evidence of the witch trials in Western Europe. But the main thesis of the book, that "witchcraft was a definite religion with beliefs, ritual, and organization as highly developed as that of any other cult in the world" remains, and will always remain, unproven.

E. M. LOEB

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Moorehead, Warren K. The Hopewell Mound Group of Ohio. (Field Museum of Natural History, publication 211, Anthropological Series, vol. vi, no. 5, pp. 75-185, 48 pls., 68 figs.) Chicago, 1922.

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— — —. Nouvelle contribution à l'étude de la langue des Itonama. (Ibid., pp. 173-195.)

— — —. Bibliographie Américaniste. (Ibid., pp. 365-404.)

— — — see Arsандаux, H.

Smith, G. Elliot. Ethnology and Psychology. (Psyche, Oct., 1922, pp. 115-117.)

Spieß, Carl. Der Legba-Kult in seinen verschiedenen Formen an der westafrikanischen Küste. (Baessler-Archiv, 1922, vi, 143-154, 16 ills.)

— — —. Fünf Abhandlungen zum Kultus der Ewee in Togo. (Ibid., pp. 155-160, 2 ills.)

Tello, Julio. Prehistoric Perú. (Inter-America, April, 1922, pp. 238-250.)

DISCUSSION AND CORRESPONDENCE

SOME COMMENTS ON "ABORIGINAL TOBACCOS"

I HAVE read with much interest Prof. Setchell's article in the *American Anthropologist*, vol. 23, no. 4, on "Aboriginal Tobaccos," but I should like to reply to some of the statements and arguments of Prof. Setchell in that article. To that end I will take them in order, beginning with that at the bottom of page 402, in which he says "tobacco seed from the Winnebago Indians of Minnesota, furnished by Dr. Melvin R. Gilmore, yielded *Nicotiana rustica*, on being grown." The seed was from the Winnebago Indians of Nebraska, not Minnesota. The Winnebagos of the present time are divided, part of them being still in their old home country in Wisconsin, and part are settled as forced immigrants on a reservation in Nebraska, not Minnesota. It was from a Winnebago in Nebraska that I obtained the seed mentioned, and he told me that he had it originally from their people in Wisconsin. Next I would say that it would have been surprising if the said seed had not "yielded *Nicotiana rustica* on being grown," for it was seed of that species which I sent Prof. Setchell, as I informed him at the time I sent it.

At the bottom of page 406 and top of page 407 he mentions that I sent him seed of *Nicotiana quadrivalvis* grown from seed which I obtained originally from an Hidatsa Indian. The seed of *Nicotiana quadrivalvis* which I had did happen to have come from an Hidatsa, but it could just as well have come from a Mandan or an Arikara, for that species is grown by all three of these tribes, who have been for a long time very closely associated, and much cultural borrowing has occurred. But in my opinion, and from all evidence which I have, the Mandan and Hidatsa both obtained it from the Arikara, who had originally brought it with them in their northward migration from the southern Plains.

In reference to the statement on page 408, paragraph 2, I beg to say that what I said was not that my "definite knowledge was of the Hidatsa tobacco only," but that the seed that I had obtained was from a man of the Hidatsa tribe, and numerous other tribes of the Plains area had the same. In my "Uses of Plants by Indians of the Missouri River Region," *Thirty-third Annual Report of the Bureau*

of *American Ethnology*, page 114, I quoted Nuttall as having said that *Nicotiana quadrivalvis* was cultivated by all the tribes along the Missouri River. That statement from Nuttall would imply, what was doubtless a fact, that *Nicotiana quadrivalvis* was the species cultivated by all the tribes along the lower course of the Missouri, and as far along the upper course of that river as he had traveled, which was up to the country of the Mandans.

Again, on page 408, second paragraph, Prof. Setchell says "It seems fully as probable that the Nebraska tribes, *being nomads* [italics mine], may not have cultivated tobacco, but probably obtained it by trade." First of all I wish to say most emphatically that the tribes of Nebraska were *not* nomads. They were all agricultural tribes, living in settled, permanent villages, their agricultural products being their main dependence for living.

And, as Prof. Setchell says on page 408, I did write "as if they (i.e., all the tribes of the Missouri River region) all used *Nicotiana quadrivalvis*." I certainly meant to say most clearly that very thing, for that was the information I had from all the tribes of that region from whom I had any information on the subject of tobacco. My information from all these tribes was to the effect that *Nicotiana quadrivalvis* was the species cultivated by all the tribes of the Plains from Texas to and including the country of the Mandans in what is now North Dakota.

MELVIN R. GILMORE

AN ESSAY ON GEOGRAPHIC NAMES IN THE STATE OF WASHINGTON

THE derivation and meaning of geographical names of Indian origin is always a matter of interest. An essay dealing among other things with Indian names, by Edmund S. Meany, is now being printed in installments in a publication known as the *Washington Historical Quarterly*, issued, according to the title page, by "The Washington University State Historical Society." Acquaintance with the region in which this publication appears indicates that "Washington University" means in this case the University of Washington. The essay began with volume 8 of this quarterly (1917), and with the issue of January of 1922 extends as far as the letter S.

Every effort to account for the origin and history of geographic names is a move in the right direction and is to be received with due thanksgiving. This is especially the case in the Northwest, which is

an extremely interesting region; and is more especially the case where names go back to native Indian expressions. Our author is therefore to be applauded for his effort.

There is, however, no great amount of care or scholarship evident in any part of his work. The essay is somewhat unsystematic, rather diffuse, decidedly anecdotal, and tiresomely sentimental. The author exercises himself with a mass of letters and books, to find explanations for the occurrence of certain geographical names. In this process he makes many slips and blunders—blunders both of fact and in presentation. No great amount of confidence can be inspired in the reader by such a work.

A few examples may not be amiss. The French expression *Nez Percé* is said by our author to be "an Idaho Indian term." The Welsh name *Bryn Mawr* is said to be "Scotch." The Spanish expression *Sierra Madre* becomes *Sierra Madras*. The Spanish word *orilla* is said to mean a "lesser bank." These slips occur in connection with the easiest part of the author's task. The effort to give an account of items running back to a native Indian origin is a rather more difficult matter. As would be expected from what has just been said, on such points the essay becomes totally unreliable. The errors existing in the literature prior to Meany's essay are faithfully reproduced, I think without missing one; and numerous others are added through misquoting the older authorities and through quoting half-informed and careless correspondents. The principal weakness in this part of the work lies in the fact that the author has made inquiries of Tom, Dick, and Harry, concerning the meaning of Indian names, but has never, curiously enough, consulted a single Indian. This helplessness and lack of enterprise is hard to understand.

The most instructive part of the work is the account which the author gives of numerous silly and trivial considerations which lie back of our present-day geographical names. Thus the name *Ralston* was given to a place by the following process. A certain railroad official, during the survey of the road, was sitting in a cook house selecting names for what were to be the future stations. Having run out of ideas, his eye suddenly lighted upon a package of breakfast-food standing on a shelf; so he promptly put down the name of the next station as *Ralston*. The name thus inflicted on the site may very likely remain there for a thousand years and be an offense to all thinking men for every moment of that time. Meany's

account of this incident conforms exactly to what was recounted to the present writer by the hero of the occasion himself.

The geographical names published by Meany are thus a quaint and curious medley of words from the most unexpected languages, and from the most incongruous sources.

We ought, I think, to feel grateful for this essay, which represents at least a beginning. If properly revised and edited by some competent person, it would be an important contribution to our knowledge of this interesting region.

T. T. WATERMAN

BRIEF COMMUNICATIONS

ETHNOGRAPHICAL OBSERVATIONS FROM THE SOUTHERN COAST OF WASHINGTON LAND

[The contributor of the following notes was a member of the second Thule Expedition, led by Mr. Knud Rasmussen, which explored the ice free areas of north Greenland as far as De Long Fjord in 83° N. lat. Later he organized another expedition for the purpose of investigating and surveying the last remaining portions of the Greenland coast, between De Long Fjord and Cape Bridgeman, in the most remote and inaccessible part of Peary Land. This expedition left Copenhagen early in 1921 and is still in the field.—Austin H. Clark.]

Before starting northward I placed two Eskimo families on Washington Land [at 80° N. lat. in northwestern Greenland], north of the Humboldt Glacier. They put up their summer tents at Cape Webster. They had a good season, the bear and seal hunting being successful, and in the future Eskimo will most likely settle here, perhaps even during winter. When we returned here in the autumn with only one dog left and for clothing merely a few rags of fur-garments, this arrangement proved to be most fortunate, as we were unable to cross the Kane Basin and the inland ice to Inglefield Gulf by ourselves until late in September.

In 1917 Mr. Knud Rasmussen found ruins of houses just north of Cape Webster, but as we passed here during the month of April a detailed examination of them of course was impossible. These ruins are of special interest, not only because they are the northernmost known in Greenland but also because the Eskimo of Cape York have no traditions regarding this section. Therefore the settlements here may date from some time before the immigration of the present tribe of northwest Greenland.

During the summer the Eskimo left here found numerous remains of previous settlements, and during my stay in August I had the opportunity of examining and supplementing their observations.

Starting at Humboldt Glacier south of Cape Forbes we found a big bear-trap, traps for eider-ducks and foxes, various stone settings made by children, and four well preserved stone rings marking summer tent places with chips of flint (the rocks at Cape Forbes

contain flint). Further we found at Cape Forbes two tent rings, and a short distance north of it a child's grave, several meat-caches and various stone settings. A little south of Cape Clay we again found two tent rings, and to the north two ruins of winter-houses. I have examined more thoroughly the ruins found by Mr. Knud Rasmussen northeast of Cape Webster. On a flat and sandy beach we found five ruins, all of big and rectangular houses. In the ruins there is no wood, but there are a number of large bones of whales. At the same place there are also seven tent rings, seventeen meat-caches and one grave, the contents of which are very much decayed. It contained a few human bones and a number of wooden implements undoubtedly from a kayak frame. We found very few tools, for instance two bone knives of ancient type, one of which still retained meteoric iron in its edge groove. North of Cape Webster were five tent-rings and several meat-caches. At the tent-rings and at the ruins as well a great number of bones of mammals were seen, principally of seals and bears but also of musk-oxen and caribou.

The most interesting find I made at Morris Bay at 80° 10', on a slope forty meters above sea level; here, half buried by sand washed down the slope, was the wooden frame of a kayak. The frame was carefully uncovered and one-third of the wooden parts were found to be preserved, in addition to thirty-four implements, partly in a fragmentary state. The implements were unknown to the Eskimo with me, and also to all the Eskimo of the Cape York tribe to whom I showed them on my return, whereas a native born at Holsteinborg who had spent most of his youth there was fully acquainted with the use of most of them. Of 34 implements of various kinds 23 are yet in use at Holsteinborg in the very same form, 7 are ancient types or differ only slightly from the Holsteinborg type of today, 2 are common to Cape York and Holsteinborg, but more nearly related to the Holsteinborg type, one is used in both places, one is not known at all, and the last is a perforated bear tooth. As to the material of which they are made, one is from the polar bear, 7 from whales, 12 from caribou, and 14 from walrus. By this identification it was shown that the kayak had been furnished with a bird-dart and a line-rack, and further that the kayak-float was of the south Greenland type, while the user of the kayak had been able to close the man-hole by means of a water-tight jacket, all these features being absent from kayaks belonging to the present tribe at Cape York. The kayak was certainly placed for further use, and is not a grave deposit.

In caching his kayak at such a considerable elevation the owner undoubtedly would avoid its being crushed by the violent ice movements on the beach here.

All the wood found is apparently driftwood and nowhere on Washington Land has anything been found to show that the present Cape York tribe ever has stayed here, nor are there any signs of the influence of the white man.

Routes of Migration in the Northern Part of Greenland

As a result of his journey in 1917 Mr. Knud Rasmussen suggested that the Eskimo had not immigrated to the east coast of Greenland by the way of north Greenland. According to my observations made this summer [1920] I can see no reason why the Eskimo could not have migrated along the north coast into J. P. Koch Fjord and continued through Wandels Dal down to Independence Fjord.

On my trip I found a well-preserved meat cache at the inlet of Frankfield Bay, which proves that the Eskimo, on their hunting excursions, at any rate, reached St. George Fjord; from there to the outlet of Wandels Dal is a journey of three days only. This valley, with its big lake and broad stream, forms during most parts of the year an excellent route for sledging, provided on either side with vast hunting grounds rich in terrestrial game.

At any rate the immigration of the musk-ox to the east coast must have taken place by that way and not by skirting the north coast of Peary Land. From De Long Fjord to the northernmost point of Greenland the coast is mountainous and largely covered with glaciers affording no favorable conditions of existence for terrestrial game. Tracks of musk-oxen are actually found to the west of the northern point of Greenland, but they have probably straggled hither from Independence Fjord skirting the east coast of Peary Land. The regions passed by Eskimo wandering from St. George Fjord to Wandels Dal are all intersected by considerable systems of valleys in which, also, recent expeditions secured considerable numbers of musk-oxen. As a rule the sledging is excellent and only exceptionally deep snow may prevent traveling. We know that the sea here is never free of ice, and that the ice often grows several years old before it is disturbed. This fact of course is unfavorable to the existence of Eskimo and probably while staying here they were obliged to modify their hunting. For only a few weeks around the first of June can seals coming to the surface of the ice be caught. Later in summer

they are inaccessible because of deep water on the ice. Therefore the Eskimo have been obliged for the rest of the season to depend on terrestrial game, especially on musk-oxen.

It is a well-known fact that the Eskimo in former times did migrate from Greely Fjord over Grant Land to Robeson Channel, and it is very interesting to note that their winter houses are known only around Lake Hazen, whereas on the seashore around Hall Basin only summer camps are known. Further we may recall that the Eskimo left in these regions by Peary during one of his last expeditions, settled round Lake Hazen and had plenty of musk-ox tallow for heating and illuminating their huts.

The routes over Grant Land and through Wandels Dal are nearly of the same distance; in both places we find extensive hunting grounds around a great lake with musk-oxen and hares which can be secured by moonlight during the dark season and, in both places, the summer camps are on the seashore. This coincidence can hardly be accidental, and probably we have to search for the winter huts belonging to the northernmost summer camps of both coasts of Greenland on the shores of the lake in Wandels Dal.

LAUGE KOCH

A SUGGESTED ORIGIN FOR GENTILE ORGANIZATION

In place of a single origin for sibs, recent tendencies have been to suggest a variety of possible origins. The historic problem is always to determine which of the possible ways is most probable. Lowie¹ has suggested how residence rules or inheritance laws might produce sib groupings. I will try to show how a gentile system might arise among the Havasupai of northern Arizona, by a further accentuation of present conditions in (1) the composition of camp groups, (2) the inheritance of farm lands, and (3) the degrees within which blood relationship is recognized.

The Havasupai have one permanent village occupied from April to October. Thirty-eight camps are scattered through the village, each on its own farm lands. The typical camp consists of several houses: one for a man, his wife, and small children, another housing an adult son and his young family, a third a second son, and so on. In the first house the newly married husband of a daughter will be

¹ Primitive Society, chapter VII, "History of the Sib."

found, for despite the fact that the village is not more than two miles in extent, temporary matrilocal residence is practised. Adult sons living elsewhere will return in a year or two with their wives to take up permanent residence at their father's camp. Such a camp group constitutes an economic unit, usually eating a common meal and laboring together in the family fields.

While the farm lands are commonly spoken of as those of the father, they really belong to the family. All members of the camp group, male and female, plant in them. There is a tendency toward the segregation of some part for the more exclusive use of a married son and his family. These divisions become fixed as the families grow up, separate, and reproduce the original conditions. Fields pass by inheritance to the resident survivors (excepting the daughter's husband), hence not normally to a widow's kinsmen or a daughter's children. Although a daughter goes with her husband to till his father's land, she retains some right in her own family lands. Thus, a widow (particularly one married but a short time) may return to live with her own family, or land may be temporarily set aside on which a daughter may raise crops for her children's support, despite the fact that she resides with her husband's kinsmen. The daughter's right equals that of the sons, but she does not transmit it.

This is practically patrilineal inheritance of farm lands and of group affiliation. If, first, the two were consistently coupled, and, second, interest in real property and its inheritance somewhat heightened in native consciousness, so that all those with common property rights should feel themselves a group, we should find each camp group a gens (lacking the exogamous feature). Such a "paternal family" corresponds to the Iroquois maternal family of Goldenweiser. It may be objected that such group consciousness would not be likely to arise in thirty-eight small camps. It has been pointed out, however, that there occurs a tendency for the reduction, first, of the number of biological groups represented in a population, and, second, a similar reduction of the number of named groups (i.e. those in which affiliation is fixed by unilateral descent.)² The number of owning groups would thus in the long run be materially reduced, and their consciousness correspondingly increased, provided there were no counter tendencies toward separation.

Whether or not exogamy is an essential function of a sib, it is possible to show these gentes might at the same time become exoga-

² Boas, *The Origin of Totemism* (*American Anthropologist*, n.s., 18, 1916, 326).

mous. One may not marry a blood relative. In such a small tribe all individuals must be related by blood, hence "blood relations" constitute an arbitrarily selected class. At present relatives more distant than those with a common great-grandparent are not recognized. For an exogamous gens all blood relatives of the father through males must be included in the prohibited class, in addition to the recognized relatives of the mother. If the property concept is further developed as suggested, then it is possible that connection with the father's relatives through males will be traced to a greater degree than with any mother's relative. This is a condition of exogamous gentile organization.²

Hence it is possible that gentes arise from the Havasupai situation by (1) an emphasis on land inheritance furthering the tracing of the paternal lineage, (2) regularity of patrilocal residence on family lands fixing patrilineal group affiliation, and (3) the extension of kinship recognition in the father's line. This suggested origin is only hypothetical, but it contains no factor unknown to Havasupai society. It might be doubted, however, that it would develop in the face of their acquaintance with Hopi and Navaho maternal principles.

LESLIE SPIER

² It is obvious that such a group need not be named.

ANTHROPOLOGICAL NOTES

JAMES A. TEIT

JAMES A. TEIT, well known to anthropologists through his researches among the Indians of the interior of British Columbia, died after a long illness on October 30, 1922.

James Teit was born on the Shetland Islands. As a young man he came to Canada and finally settled at Spence's Bridge, British Columbia. There he lived near a village of the Thompson Indians and became thoroughly conversant with their language and customs. He took a deep human interest in their affairs and was, in the best sense of the word, a friend and adviser of the Indians.

In 1895, on one of my trips to British Columbia, it was my good fortune to make his acquaintance, and our joint labors extended from that time until his death. He also became a valued collaborator of the Geological Survey of Canada. He collected various data on the natural history and ethnology of British Columbia, and his collections are almost the only ones that give us a picture of the life of the Indians of that region. They are to be found in the museums of Ottawa, New York, and Chicago.

The great value of Teit's contributions to ethnology is due to his painstaking accuracy, his intimate acquaintance with the Indians, and his ability to converse with them in their own tongue. He spoke fluently the Thompson language and conversed easily with the Shuswap and also with the Lillooet. Hence his descriptions of these tribes are full and accurate. Practically our whole knowledge of the material culture, social organization, customs, beliefs and tales of the Salish tribes of the interior of British Columbia is based on his work.

In 1902 and the following years Teit travelled as guide with a number of gentlemen, including Mr. Homer E. Sargent, whose interest in the Indians was stimulated by Teit's accounts and the opportunities he gave to see native life. Mr. Sargent enabled Teit to carry through a very extended study of the distribution of the dialects of the Salish language and also of the adjacent Athapaskan group. This work led later on to an investigation of the Tahltan for

the Geological Survey of Canada. Teit's map of the early distribution of tribes in British Columbia, Montana, Idaho and Washington, a work that still awaits publication, is fundamental for our knowledge of these regions. At the request of Mr. Sargent, and with the assistance of Dr. H. Haeberlin, he made a thorough study of Salish basketry, which is also still awaiting publication. His last work was a comprehensive description of the ethno-botany and ethno-geography of the interior of British Columbia. These studies were still incomplete at the time of his death.

While he was carrying on all these researches he became more and more interested in the difficulties against which the Indians have to contend, and his warm sympathy for their suffering led him to undertake the organization of the Indian tribes into an association for the protection of their rights. He acted as secretary of the organization which comprised all the tribes of British Columbia, and which has become a potent factor in determining the relations between the Canadian Government and the Indian tribes. Unceasingly he labored for their welfare and subordinated all other interests, scientific as well as personal, to this work, which he came to consider the most important task of his life. When I saw him last, a few weeks before his death, he was hoping to see his work for the Indians crowned with early success, and spoke of his plans to turn again to his ethnographical studies. Truly in him the Indians have lost their most faithful friend. Those who knew him will always remember him as a man of sterling worth. Anthropologists will always regret that it was not given to him to complete his valuable researches. There is nobody equipped as he was and able to complete this task.

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FRANZ BOAS

ROBERT W. WILLSON

It is with deep regret that we record the death, on November 1, 1922, of Robert W. Willson, Professor Emeritus of Anthropology at Harvard University. For the last ten years of his life Professor Willson had been much interested in the investigation of the astronomical features of the Maya Codices, more especially the Dresden manuscript, and devoted a large part of his time to this study. He made valuable suggestions to students in this field and, fortunately, he has left much of his data practically ready for publication. These results will be brought out as a paper of the Peabody Museum of Archaeology and Ethnology.

The following letter regarding Professor Willson has been received by the Editor. From what has just been said it is seen that the writer's fears for Professor Willson's literary remains are, fortunately, not entirely justified.

Editor of the *American Anthropologist*:

May I be permitted to express a few words of appreciation of the late Professor Robert W. Willson of Harvard, because, during the last few years, for a time all too brief, I had the good fortune to visit him whenever I passed through Cambridge, and to discuss the Maya astronomy in which we were both intensely interested, he from the viewpoint of mathematics and exact science, I from the less definite viewpoint of symbolism. I can never forget his kindly, broad, tolerant spirit, a spirit which I believe to be characteristic of the real Harvard, seeking truth in every quarter, and glad to welcome it from any, whether or not it agreed with his own conclusions, striving always to help the student without thought of selfish prestige.

He made my visits a delight which will never pass out of my memory. He found in the Dresden codex, to which he devoted his attention, an astrology of lucky and unlucky days for the populace but an ephemeris of wonderfully accurate calculations of planetary positions, eclipses, solstices and equinoxes, which it is most unfortunate for Maya science that he did not live to complete and publish. It is certainly to be hoped that some astronomer will carry forward the work which he has now laid down and give to students of the remarkable Maya culture the benefit of his researches. But it is for the man, even more than for his work, that I wish to express my deep admiration, and for his departure, my deep regret.

Very truly yours,

STANSBURY HAGAR

PRELIMINARY REPORT ON THE FIELD WORK OF THE AMERICAN
SCHOOL IN FRANCE OF PREHISTORIC STUDIES FOR THE
YEAR 1922

FOR the year's work from July 1, 1922 to July 1, 1923, three scholarships were offered of five thousand, three thousand, and two thousand francs respectively. There were over fifteen applicants representing nearly as many states of the Union. The successful applicants are Miss E. L. Bayles, Smith College 1921, of Cincinnati; Mr. Noguera, formerly at Harvard University, of Mexico City; and Mr. J. H. Goff, Oglethorpe University 1920, of Macon, Georgia.

Besides these three, three other students completed the summer's work, and one more spent a month in study in the field.

The work consisted in excavation at the station of La Quina in the forenoon, and in attendance at lectures in the laboratory of Dr. Henri Martin, near by, in the afternoon: of these, one was given by the Doctor himself, who accepted a position on the staff as lecturer in Palaeontology, and a second by the Director on Prehistoric Archaeology in general.

Numerous tests and examinations were required and a thesis was demanded on some special subject germane to the excavations.

The results of the excavations themselves may be said to be satisfactory. The trench (La Quina M.), continued in 1921 under Director MacCurdy, was extended and proved of somewhat varying richness.

The specimens found were predominantly Mousterian, but Acheulean tendencies were not lacking nor were those of Aurignacian quality (in the upper part). In addition, a small grotto (La Quina O) was excavated to a distance of eight meters; the somewhat scanty (though interesting) specimens found here proved almost exclusively Aurignacian.

Animal bones, particularly those of the horse, bison, and reindeer were abundant and (as is usually the case) a large number of teeth were preserved.

Including gifts and adjacent Neolithic findings a summary would present the following implements and fragments:

Implements of percussion...	75	Discs.....	7
Side-scrappers.....	179	Nuclei.....	81
Front-scrappers.....	43	Blades.....	21
Perforators.....	15	Points, other than Mouste-	
Knives.....	66	rian.....	31
Mousterian points.....	32	Planes and "Rugines".....	15
		Miscellaneous.....	107

Excursions were made to Les Eyzies, Teyjat, a neighboring Mervinian cemetery, etc., and at the end of September the students undertook an excursion to the caves of Gargas, Mas d'Azil, Tuc d'Audubert, and Trois Frères in the Pyrenean region.

The winter's work will be undertaken by the three scholarship holders, and the others; the latter hope to remain in Paris as long as possible.

This report as well as the school itself would not have existed had it not been for the generosity and kindness of Dr. Henri Martin and his family.

In encouragement, in scientific assistance, and in hospitality they have added one more season of incomparable enthusiasm; the Director and the students are deeply appreciative of this, as well as of the kindness of M. Hubert of the Museum of Saint Germain, and of Mr. Passemard of Biarritz, who generously delivered lectures before the School on the Neolithic, Bronze, and Iron Ages, and on the Cavern of Isturitz respectively.

Several American travelers visited the school—among them were Professor Field of Brown University and three students in geology who passed a day at the excavations and in the laboratory.

CHARLES PEABODY,
Director

October, 1922

THE UNIVERSITY OF DENVER BULLETIN for December 1922 contains a "Report on the Work of the 1922 Season in the Piedra Parada Archaeological Field," by Frank H. H. Roberts, Jr. This expedition was under the joint auspices of the University of Denver and the State Historical and Natural History Society of Colorado, and was in continuation of the work of the preceding summer. The Director of the expedition was Mr. J. A. Jeancon, Curator of Archaeology and Ethnology at the State Museum, and the Assistant Director Mr. Frank H. H. Roberts, Jr., Instructor in the University of Denver. "The work of the summer of 1922," to quote from the Report, "was devoted to four sites, three of the pit-house type and the larger pueblo on the top of the Piedra Parada mesa. In addition to this Mr. Jeancon and Mr. Wagstaff made several reconnaissance trips to various parts of the surrounding territory for the purpose of locating ruins and making, as far as possible without excavation, a tentative comparison of their relation to those of the group on which

excavation was being conducted. The results of these trips will be included in the report of the entire summer's work which is to be issued at a later date." Some of the results of this work are thus stated: "From the facts at hand at the present time it is reasonably safe to conclude that the peoples who built the structures found along the Piedra River were to a great degree related to the other San Juan groups, who left as their monuments the great ruins at Aztec and the Chaco Canyon. . . . The work of the 1922 season also served to strengthen the tentative theory advanced by Mr. Jeancon to the effect that the area under consideration saw the complete cultural development of the inhabitants, from their earliest stages to the more advanced community-house culture with its attendant perfection in ceramics. Nothing was found to controvert the theory of house-type evolution as advanced in the report for 1921, and in fact the work of the last season would tend to strengthen this conclusion."

A GRAMMAR AND DICTIONARY of the Tarahumara language of Chihuahua, compiled by Rev. José Ferrero, S. J., was published in 1920 (232 pages) by the Jesuit Fathers under the title *Pequeña Gramática y Diccionario de la Lengua Tarahumara*, Mexico, Imprenta dirigida por J. Aguilar Vera, 7ª Ribera de San Cosme, 124. The dictionary portion is in Spanish-Tarahumara, and the Fathers are now desirous of publishing a second part in Tarahumara-Spanish. American students and collectors interested in procuring the work should address Rev. Fr. José Mier y Terán, Sisoguichic, Chihuahua, Mexico, who will be pleased to receive advance orders for the Tarahumara-Spanish part, which will be printed when the means afford.

A PEABODY MUSEUM expedition under the direction of Samuel J. Guernsey continued the investigations in the Marsh Pass region of northeastern Arizona during the summer of 1922. The second phase of the Basket Maker culture, first brought to light by the expedition of 1921, was studied and a large section on the lower Chin Lee was also investigated, new sites being mapped and data relating to the early Cliff Dweller Pueblo obtained. George Vaillant, a Graduate Student in the Department of Anthropology, accompanied the expedition as an Assistant.

A COMMITTEE has been formed to establish a Memorial to Benjamin Harrison, the village geologist and prehistoric archaeologist of

Ightham, Kent, who died in 1921. The first meeting of the Committee was held at the Royal Anthropological Institute in November, 1922, under the presidency of Lord Avebury. Donations will be received by the Treasurer, Mr. de Barri Crawshay, Rosefield, Seven-oaks (Kent).

THE MARQUIS OF CERRALBO, well known for his achievements in the field of prehistoric research in Spain, has died at the age of seventy-seven years.

At the thirty-eighth annual meeting of the Indiana Academy of Science, held at Indianapolis, Dec. 7 and 8, 1922, the following papers of interest to anthropologists were presented: Francis Galton, life and work, by Robert Hessler; The Palaeolithic Stone Age in Indiana, by S. Frank Balcom; The Archaeological Survey of Jefferson County, by Glenn Culbertson; The Southern Ute Indians of the Pine River Valley, Colorado, Indian Funerals, Twinkling Star (three papers by title), by Albert B. Reagan; Archaeology in Posey and Vanderburg Counties, by Andrew J. Bigney.

ON Jan. 1, 1922, the work of the new Swedish Institute for Race-Biology, established by vote of the Swedish Parliament on May 13, 1921, was inaugurated. The staff includes Dr. W. W. Krauss, formerly of Vienna in the capacity of Assistant Anthropologist.

THE diploma of doctor *honoris causa* of the University of Strasbourg has been conferred upon Sir James Frazer, the well-known writer on totemistic and other features of primitive culture.

As a result of the efforts of the Bureau of American Ethnology, President Harding has withdrawn from settlement three groups of prehistoric towers in southwestern Colorado and southeastern Utah. These are known as the ruins in Ruin Canyon, Holly Canyon, and Cool Spring House on Cajon Mesa. It is proposed that these groups be made a National Monument.

DR. ELSIE CLEWS PARSONS has been elected President of the American Ethnological Society of New York.

DR. ALEŠ HRDLÍČKA, of the U. S. National Museum, is lecturing at the Postgraduate School of the American University, Washington, D. C., on "Human Variation."

DR. E. S. HANDY, Ethnologist, and MRS. WILLOMDEAN CHATTERTON HANDY, Associate in Polynesian folk ways of the Bishop Museum

staff, left Honolulu early in January to continue their researches in Polynesian native culture. After a short stay in New Zealand they will proceed to Tahiti, where their work for the present year will be centered—*Science*.

THE officers of Section H (Anthropology), of the A. A. A. S. elected at the Cambridge meeting are: Vice-President and Chairman (1923), E. A. Hooton, Harvard University; Secretary (1923-1924), R. J. Terry, Washington University, St. Louis, Mo.; Member of Section Committee (1924-1926), R. B. Bean, University of Virginia.

ROBERT T. AITKEN AND JOHN F. G. STOKES, of the Bishop Museum, have returned to Honolulu after an absence of two years devoted to anthropological studies in connection with the Bayard Dominick Expedition. Their field of work included the islands of Rapa, Rurutu, Ravaivai and Tubuai of the Austral group. On his return journey to Papeete, several islands of the Tuamotu group were visited by Mr. Stokes.—*Science*.

FOLLOWING upon the Congress of Americanists at Rio Janeiro, Dr. Aleš Hrdlička, Curator of the Department of Physical Anthropology in the U. S. National Museum, visited the more important sites in central and western Europe where remains of ancient man have recently been found. At the invitation of the Minister of Education of the Czechoslovak Republic he also delivered a series of lectures on "Anthropology and man's evolution" at the universities of Prague, Brno (Brün), and Bratislava (Pressburg), and at the People's University of Plzeň (Pilsen).

IN connection with the Pueblo Bonito Expedition of the National Geographic Society, under the charge of Mr. Neil M. Judd, an attempt is to be made to fix approximate dates for the ruins in that area by means of sections or borings from the oldest living trees in the region, from similar sections from pine stumps and logs buried in the valley deposits, and from ceiling timbers exposed in the ruins.

PROF. A. M. TOZZER is Harvard Visiting Professor to Western Colleges for 1923. His appointments include, for the month of February, Knox College, Galesburg, Ill.; March, Colorado College; April, Pomona College, California.

THE formal opening of the Museum of the American Indian, Heye Foundation, New York City, took place on the afternoon of Wednesday, November 15, 1922.

INDEX TO AUTHORS AND TITLES

- "ABORIGINAL TOBACCOS," Some Comments on, [480](#)
- AITKEN, ROBERT T., field work, [395](#)
- AMERICAN Anthropoids, [249](#)
- AMERICAN ANTHROPOLOGICAL ASSOCIATION, Annual Meeting of the, announcement, [392](#)
- — —, Anthropology at the Brooklyn Meeting and Proceedings of the, [99](#)
- — —, Officers and Members 1922, [118](#)
- — —, Organization of a Central Section of the, [247](#)
- — —, archaeology, papers on before Iowa Academy of Science, [252](#)
- — —, ETHNOLOGY AND ARCHAEOLOGY, THE ANGRAND PRIZE IN, [115](#)
- — —, INDIAN, MUSEUM OF THE, Heye Foundation, opening, [497](#)
- — —, SCHOOL IN FRANCE FOR PREHISTORIC STUDIES, begins second year's work, [395](#)
- — — — —, The First Season's Work of the, [62](#)
- — — — —, for the Year 1922, Preliminary Report on the Field Work of the, [493](#)
- ANALYSIS of Pre-Columbian Pipe Dottels, [245](#)
- ANGRAND PRIZE IN AMERICAN ETHNOLOGY AND ARCHAEOLOGY, THE, [115](#)
- ANNUAL Meeting of the American Anthropological Association, announcement, [392](#)
- ANTHROPOIDS, American, [249](#)
- ANTHROPOLOGICAL ASSOCIATION, *see* American Anthropological Association
- — —, chairs in Polish universities, occupants of, [116](#)
- — —, lectures in Austrian and German universities, [116](#)
- — —, papers at the meeting of the Indiana Academy of Sciences, [496](#)
- — —, papers before meeting of Southwestern Division of the A.A.A.S., [251](#)
- ANTHROPOLOGY at the Brooklyn Meeting and Proceedings of the American Anthropological Association, [99](#)
- — —, doctorates in, [252](#)
- ARAWAKS, THE CENTRAL (Dr. Roth's Rejoinder), [92](#)
- ARCHAEOLOGICAL Monuments of Yucatan, Association for the Preservation of the, [396](#)
- — —, papers at meeting of the Southwestern Division of the A. A. A. S., [251](#)
- — —, Surveys, Notes on State, [233](#)
- ART, The Complexity of Rhythm in Decorative, [183](#)
- ASSOCIATION for the Preservation of the Archaeological Monuments of Yucatan, [396](#)
- ATHABASKAN Tone, [390](#)
- AUSTRIAN and German universities, lectures in, [116](#)
- AVUNCULATE among the Vandau, The, [95](#)
- — —, in Patrilineal Tribes, The, [94](#)

- BAER, JOHN LEONARD, A Prochlorite Bannerstone Workshop, [438](#), field work, [251](#)
- BANNERSTONE Workshop, A Prochlorite, [438](#)
- BARRETT, S. A., secures totem pole, [394](#)
- BATTLE, HERBERT B., The Domestic Use of Oil Among the Southern Aborigines, [171](#)
- BECKWITH, MARTHA W., Hawaiian Riddling, [311](#), review by, [375](#)
- BÉGOUEN, COUNT, appointment, [251](#)
- BENEDICT, RUTH FULTON, The Vision in Plains Culture, [1](#)
- BISHOP MUSEUM, field work by, [496](#), [497](#)
- "BLOND" Eskimo—A Question of Method, The, [225](#)
- — —, Further Discussion of the, [228](#)
- BOAS, FRANZ, The Avunculate among the Vandau, [95](#)
- BOLIVIA, The Ethnological and Linguistic Position of the Tacana Indians of, [161](#)
- BREUIL, THE ABBÉ, on pliocene man, [116](#)
- BRITISH ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE, addresses before, [396](#)
- BROKEN HILL in Rhodesia, The Skull from, [97](#)
- BRONZE, in the Dawn of the Art of Metallurgy, The Composition of Some Ancient, [129](#)
- BROOKLYN Meeting and Proceedings of the American Anthropological Association, Anthropology at the, [99](#)
- BROWN, A. RADCLIFFE, [250](#)
- BROWN, CHARLES E., investigations by, [394](#)
- BURKITT, ROBERT, field work, [117](#)
- CALIFORNIA, Feather Mantles of, [433](#)
- CARTAILHAC, EMILE, memorial notice, [112](#)
- CENTRAL ARAWAKS, THE (Dr. Roth's Rejoinder), [92](#)
- CENTRAL SECTION of the American Anthropological Association, Organization of a, [247](#)
- CERRALBO, THE MARQUIS OF, death of, [496](#)
- COLORADO land containing prehistoric towers withdrawn from settlement, [496](#)
- , State Historical and Natural History Society of, field work by, [494](#)
- COMPLEXITY of Rhythm in Decorative Art, The, [183](#)
- COMPOSITION of Some Ancient Bronze in the Dawn of the Art of Metallurgy, The, [129](#)
- CONTRIBUTIONS to Hopi History, [253](#)
- COPPER Eskimos—A Reply to Mr. Cadzow, Copper Objects of the, [89](#)
- Objects of the Copper Eskimos—A Reply to Mr. Cadzow, [89](#)
- CUSHING, FRANK HAMILTON, "Oraibi in 1833" in Contributions to Hopi History, [253](#)
- DAKOTA, Meaning of the Word, [242](#)
- DECORATIVE Art, The Complexity of Rhythm in, [183](#)
- DIXON, ROLAND B., honors, [252](#), reviews by, [373](#), [471](#)
- — —, and John B. Stetson, Jr., Analysis of Pre-Columbian Pipe Dottels, [245](#)
- DODGE, RAYMOND C., appointment, [250](#)
- DOMESTIC Use of Oil Among the Southern Aborigines, The, [171](#)
- DONEHOO, GEORGE P., appointment, [251](#)
- ESKIMO, The "Blond," [225](#), [228](#)
- ESSAY on Geographic Names in the State of Washington, An, [481](#)

- ETHNOGRAPHICAL Observations from the Southern Coast of Washington Land, [484](#)
- ETHNOLOGICAL and Linguistic Position of the Tacana Indians of Bolivia, The, [161](#)
- ETHNOLOGISTS, an international assembly of, [396](#)
- EXPEDITIONS of the Field Museum of Natural History in 1922, [114](#)
- EXPLORATION of the Mound City Group, Ross County, Ohio, [397](#)
- FAMILY Hunting Territory and Lenápe Political Organization, The, [448](#)
- FARABEE, WILLIAM C., field work, [117](#)
- FARMER, Medicine Songs of George, [332](#)
- FARRAND, LIVINGSTON, receives honorary degree, [252](#)
- FAYE, P. S., review by, [221](#)
- FEATHER Mantles of California, [432](#)
- FEWKES, J. WALTER, field work, [394](#), "Oraibi in 1890" in Contributions to Hopi History, 268
- FIELD MUSEUM OF NATURAL HISTORY in 1922, Expeditions of the, [114](#)
- FIRST Season's Work of the American School in France for Prehistoric Studies, The, [61](#)
- FLOM, GEORGE T., A Recently Discovered Stone Sculpture in Öland, Sweden, [441](#)
- FRANCE, *see* American School in France
- FRAZER, SIR JAMES, honor conferred on, [496](#)
- FURTHER Discussion of the "Blond" Eskimo, [228](#)
- GAMIO, A Letter from Dr., [232](#)
- GENTILE Organization, A Suggested Origin for, [487](#)
- GEOGRAPHIC Names in the State of Washington, An Essay on, [481](#)
- GERMAN and Austrian universities, lectures in, [116](#)
- GIFFORD, E. W., review by, [470](#)
- GILMORE, MELVIN R., Meaning of the the Word Dakota, [242](#), Some Comments on "Aboriginal Tobacco," [480](#)
- GODDARD, P. E., field work, [252](#)
- GRAEBNER, F., lectures by, [116](#)
- GRINNELL, GEORGE BIRD, The Medicine Wheel, [299](#)
- GUERNSEY, S. J., field work of, [495](#)
- GUTHE, CARL E., field work and appointment, [395](#)
- HAGAR, STANSBURY, review by, [217](#)
- HALLOWELL, A. I., appointment, [117](#), researches, [250](#)
- HANDY, EDWARD S., field work of, [396](#)
- — —, and Mrs. Willomdean Chatterton, field work by, [496](#)
- HARRINGTON, JOHN P., field work, [251](#), [396](#)
- HARRINGTON, M. R., field work, [393](#)
- HARRISON, BENJAMIN, memorial to, [495](#)
- HAWAIIAN Riddling, [311](#)
- HOLMES, WILLIAM H., honors, [251](#)
- HOPÍ History, Contributions to, 253
- HOUGH, WALTER, appointed delegate, [117](#), review by, [220](#)
- HOUGHTON, FREDERICK, The Traditional Origin and Naming of the Seneca Nation, [31](#)
- HRDLÍČKA, ALEŠ, activities, —, appointments, [117](#), [252](#), honors, [251](#), lectures by, [497](#)
- HUNTING Territory and Lenápe Political Organization, The Family, [449](#)
- INDIANA ACADEMY OF SCIENCES, anthropological papers at meeting of, [496](#)

- INTERNATIONAL ASSEMBLY OF GEOGRAPHERS, EXPLORERS, ETHNOLOGISTS, AND NATURALISTS at Marseilles, [396](#)
- IOWA ACADEMY OF SCIENCES, papers on American archaeology before, [252](#)
- JAMES MOONEY, [209](#)
- JENNESS, DIAMOND, Copper Objects of the Copper Eskimos—A Reply to Mr. Cadzow, [89](#)
- JUDD, NEIL M., field work, [251](#)
- KEITH, SIR ARTHUR, lectures by, [252](#)
- KOCH, LAUGE, Ethnographical Observations from the Southern Coast of Washington Land, [484](#)
- KÖPPERS, FATHER WILHELM, field work, [117](#)
- KRAEMER, A., lectures by, [116](#)
- KRAUSE, F., lectures by, [116](#)
- KROEBER, A. L., reviews by, [464-470](#)
- LARSEN, ISABEL, review by, [87](#)
- LEHMANN, W., lectures by, [116](#)
- LENÁPE Political Organization, The Family Hunting Territory and, [448](#)
- LETTER from Dr. Gamio, A, [232](#)
- LINGUISTIC Position of the Tacana Indians of Bolivia, The Ethnological and, [161](#)
- LOEB, E. M., review by, [476](#)
- LOUBAT PRIZES, THE, [392](#)
- LOWIE, ROBERT H., review by, [215](#), The Avunculate in Patrilineal Tribes, [94](#)
- LUMHOLTZ, CARL, death of, [117](#)
- MACCURDY, GEORGE GRANT, activities, [395](#), memorial notice of Emile Cartailhac, [112](#), review by, [219](#), The First Season's Work of the American School in France for Prehistoric Studies, [61](#), The Skull from Broken Hill in Rhodesia, [97](#)
- MACLEOD, WILLIAM CHRISTIE, The Family Hunting Territory and Lenápe Political Organization, [448](#)
- MALINOWSKI, DR., lectures by, [252](#)
- MARSEILLES, International Assembly of Geographers, Explorers, Ethnologists, and Naturalists at, [396](#)
- MARTIN, R., lectures by, [116](#)
- MAYA Historical Narrative, A New, [44](#)
- McKERN, W. C., appointment, [396](#)
- MEANING of the Word Dakota, [242](#)
- MEDICINE Songs of George Farmer, [332](#)
- Wheel, The, [299](#)
- MEDICINES Used by the Micmac Indians, [24](#)
- MERRIAM, JOHN C., receives honorary degree, [252](#)
- MERWIN, BRUCE W., review by, [215](#)
- METALLURGY, The Composition of Some Ancient Bronze in the Dawn of the Art of, [129](#)
- MICMAC Indians, Medicines Used by the, [24](#)
- MILLS, WILLIAM C., Exploration of the Mound City Group, Ross County, Ohio, [397](#)
- MOONEY, JAMES, [209](#)
- MORICE, A. G., Prejudice or Linguistic Short-Coming?, [385](#)
- MORRIS, EARL H., field work, [252](#)
- MOUND CITY GROUP, Ross County, Ohio, Exploration of the, [397](#)
- MUSEUM OF THE AMERICAN INDIAN, Heye Foundation, field work, [393](#), opening of, [497](#)
- MUSIC, New Phases in the Study of Primitive, [144](#)
- MYERS, C. S., address on Dr. W. H. R. Rivers, [396](#)
- NAMING of the Seneca Nation, The Traditional Origin and, [31](#)
- NELSON, N. C., investigations, [250](#)
- NEW Phases in the Study of Primitive Music, [144](#)

- NOICE, H. H., Further Discussion of the "Blond" Eskimo, 228
- NOTES on State Archaeological Surveys, 233
- OBERMAIER, Hugo, appointment, 395
- OETTEKING, Bruno, review by, 83
- OFFICERS and Members of the American Anthropological Association for 1922, 118
- of Section H, A.A.A.S., 497
- OGBURN, WILLIAM F., review by, 473
- OIL among the Southern Aborigines, The Domestic Use of, 171
- ÖLAND, Sweden, A Recently Discovered Stone Sculpture in, 442
- ORGANIZATION of a Central Section of the American Anthropological Association, 247
- PARKER, ARTHUR C., field work, 394
- PARSONS, ELSIE CLEWS, election of, —, "Oraibi in 1920" and "Shoh-mó pavi in 1920," in Contributions to Hopi History, 283, 294
- PATRILINEAL Tribes, The Avunculate in, 94
- PEABODY, CHARLES, assumes directorate, 117, review by, 370
- PHILLIPS, GEORGE BRINTON, The Composition of Some Ancient Bronze in the Dawn of the Art of Metallurgy, 129
- PILTDOWN skull, a new reconstruction of the, 250
- PIPE Dottels, Analysis of Pre-Columbian, 245
- PLAINS Culture, The Vision in, 1
- PLIOCENE man, 116
- POLISH Universities, occupants of anthropological chairs in, 116
- PREHISTORIC towers on Colorado land withdrawn from settlement, 496
- PREJUDICE or Linguistic Short-Coming? 385
- PRELIMINARY Report on the Field Work of the American School in France of Prehistoric Studies for the Year 1922, 493
- PRESERVATION of ancient remains in the State of Yucatan, a society formed for the, 396
- PREUSS, K., lectures by, 116
- PRIMITIVE Music, New Phases in the Study of, 144
- PROCEEDINGS of the American Anthropological Association, Anthropology at the Brooklyn Meeting and, 99
- PROCHLORITE Bannerstone Workshop, A, 438
- PUEBLO BONITO EXPEDITION, work of, 497
- RACE-BIOLOGY, opening of the Swedish Institute for, 496
- REAGAN, ALBERT B., Medicine Songs of George Farmer, 332
- RECENTLY Discovered Stone Sculpture in Öland, Sweden, A, 441
- REICHARD, GLADYS A., review by, 381, The Complexity of Rhythm in Decorative Art, 183
- RHODESIA, *see* Broken Hill
- RHYTHM in Decorative Art, The Complexity of, 183
- RIDDLING, Hawaiian, 311
- RIVERS, W. H. R., death of, 117, memorial address regarding the work of, 396
- RIVIÈRE, EMILE, death of, 117
- ROBERTS, HELEN H., New Phases in the Study of Primitive Music, 144
- ROSS COUNTY, Ohio (Archaeological remains) *see* Mound City Group
- ROTH, WALTER E., reply to Dr. Farabee, 92
- ROYS, RALPH L., A New Maya Historical Narrative, 44
- SAPIR, E., Athabaskan Tone, 390
- SCHMIDT, M., lectures by, 116
- SCHMIDT, W., lectures by, 116
- SCHULLER, RUDOLPH, The Ethnological and Linguistic Position of the Tacana Indians of Bolivia, 161

- SCULPTURE in Öland, Sweden, A Recently Discovered Stone, [441](#)
- SECTION II, A.A.A.S., officers, [497](#)
- SENECA Nation, The Traditional Origin and Naming of the, [31](#)
- SKINNER, ALANSON, field work, [392](#)
- SKULL from Broken Hill in Rhodesia, The, [97](#)
- SMITH, HARLAN L., field work, [117](#)
- SMITH, STEPHENSON PERCY, death of, [395](#)
- SOME Comments on "Aboriginal Tobaccos," [480](#)
- SONGS of George Farmer, Medicine, [332](#)
- SOUTHERN Aborigines, The Domestic Use of Oil among the, [171](#)
- SOUTHWESTERN Division of the A.A. A.S., meeting of the, [251](#)
- SPIER, LESLIE, A Suggested Origin for Gentile Organization, [487](#)
- SPITZKA, EDWARD ANTHONY, death of, [396](#)
- STARR, FREDERICK, reviews by, [73](#)
- STATE Archaeological Surveys, Notes on, [233](#)
- STATE HISTORICAL AND NATURAL HISTORY SOCIETY OF COLORADO, field work by, [494](#)
- STEFANSSON, VILHJALMUR, receives honorary degree, [252](#)
- STETSON, Jr., JOHN B., and Roland B. Dixon, Analysis of Pre-Columbian Pipe Dottels, [245](#)
- STOKES, JOHN F. G., field work of, [497](#)
- STONE Sculpture in Öland, Sweden, A Recently Discovered, [441](#)
- SUGGESTED Origin for Gentile Organization, A, [487](#)
- SWEDEN, A Recently Discovered Stone Sculpture in Öland, [441](#)
- SWEDISH Institute for Race-Biology, opening of the, [496](#)
- TACANA Indians of Bolivia, The Ethnological and Linguistic Position of the, [161](#)
- TARAHUMARA language, publication of a grammar and dictionary of the, [495](#)
- TEIT, JAMES A., memorial notice, [490](#)
- THURNWALD, R., lectures by, [116](#)
- TOBACCO, *see* Gilmore, Melvin R.
- TOZZER, A. M., lectures, [497](#), reviews by, [72](#)
- TRADITIONAL Origin and Naming of the Seneca Nation, The, [31](#)
- UNIVERSITY of Denver, field work by the, [494](#)
- VANDAU, The Avunculate among the, [95](#)
- VISION in Plains Culture, The, [1](#)
- VON LUSCHAN, F., lectures by, [116](#), retirement of, [395](#)
- WALLIS, WILSON D., Medicine Used by the Micmac Indians, [24](#)
- WASHINGTON, An Essay on Ethnographic Names in the State of, [481](#)
- WASHINGTON LAND, Ethnographical Observations from the Southern Coast of, [484](#)
- WATERMAN, T. T., activities, [396](#), An Essay on Geographic Names in the State of Washington, [481](#), field work, [250](#)
- WEBSTER, HUTTON, translations of work by, [394](#)
- WEULE, K., lectures by, [116](#)
- WHITNEY, LEE R., investigations, [394](#)
- WILLOUGHBY, CHARLES C., Feather Mantles of California, [432](#)
- WILLSON, ROBERT W., memorial notice, [492](#)
- YUCATAN, a society for the preservation of ancient remains formed in the State of, [396](#)

13.11.

